Appendix 1

Bridgend County Borough Council

2023 Air Quality Progress Report

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

Date: June 2023

Local Authority Officer	Adam Spear
Department	Specialist Enterprise Services
Address	Civic Offices, Holton Road, Barry CF63 4RU
Telephone	0300 123 6696
e-mail	aspear@valeofglamorgan.gov.uk
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Executive Summary: Air Quality in Our Area

What has become distinctly apparent is that air Pollution is a local and national problem. Long-term exposure reduces life expectancy by increasing mortality, as well as increasing morbidity risks from heart disease and strokes, respiratory diseases, lung cancer and other effects.

What we know is that poor air quality in Wales poses a significant concern for Public Health and is regarded as the most significant environmental determinant of health. Its associated adverse risk to public health is particularly prevalent within urban areas and near major roads. The pollutants of primary concern for public health are particulate matter and primary/ secondary derived nitrogen dioxide (NO_2). Both pollutants primarily originate from motor vehicles.

The UK expert Committee on the Medical Effects of Air Pollution (COMEAP) estimated that air pollution is responsible for "an effect equivalent of between 28,000 and 36,000 deaths (at typical ages) each year" in the UK. In 2022, the UK Health Security Agency updated this estimate; the burden range is now reported as the equivalent of between 29,000 and 43,000 deaths per year[1].

The burden range does not reflect 'actual' deaths from air pollution exposure but is an estimate of the 'equivalent' reduced life expectancy, when summed, which everyone experiences because of air pollution exposure (6-8 months on average but could range from days to years).

In Wales – based on modelled air pollution data pre-pandemic – Public Health Wales estimated the burden of long-term air pollution exposure to be around the equivalent of 1,000 to 1,400 deaths each year[2]. This estimate was calculated using a more accurate method that considers the combined effects of different pollutants, meaning that the overlapping effects of $PM_{2.5}$ and NO_2 are accounted for.

[1] https://airquality.gov.wales/about-air-quality/health-advice

[2] https://phw.nhs.wales/services-and-teams/environmental-public-health/air-quality/air-pollution-and-health-fact-sheet/

Impact estimates are uncertain, however, which is why they should always be presented as a range of values, rather than a single, central estimate. The estimates are also relevant only to a single time and place and should not be used for comparisons.

Although estimating the burden of air pollution is difficult, there is clear and strong evidence that it does harm health. It is therefore important to take action to reduce air pollution and the harms that go with it.

Pandemic Restrictions and the Impact on Air Quality

The emergency public health restrictions introduced during the pandemic (e.g. lock down and working from home policies) showed just how closely travel, transport and air pollution are connected.

In work commissioned by Welsh Government[3], the changes in concentrations of different air pollutants during lock-down phases were assessed. It showed that travel and transport are significant contributors to air pollution, and that changes in the need to travel and mode of travel can improve air quality.

Policies that recognise these changes and aim to support them being adopted in the long-term are likely to benefit air quality and health.

Remote and Hybrid working has remained higher than pre-pandemic levels. These working practices contribute towards decreased traffic and emissions on our roads. Data is presented by the ONS (Office of National Statistics) for the UK Annual Population Survey in 2019[4]. In the 12-month period from January to December 2019, in the UK there were an estimated 1.7 million people who said that they work mainly from home; this represents just over 5% of the total workforce.

Levels of working from home peaked during the pandemic, with almost half of working adults (49%) reporting having worked from home at some point in the past seven days in the first half of 2020 (3 to 13 April and 11 to 14 June 2020). Two years later (27 April to 8 May 2022), when guidance to work from home was lifted in Great Britain, around 38% of working adults reported having worked from home. In the most recent period (25 January

[3] https://airquality.gov.wales/reports-seminars/reports?page=1

[4] Coronavirus and homeworking in the UK labour market - Office for National Statistics (ons.gov.uk)

to 5 February 2023) around 40% of working adults reported having worked from home at some point in the past seven days.

The Environment (Air Quality and Soundscapes) (Wales) Bill

The Environment (Air Quality and Soundscapes) (Wales) Bill[5] was introduced to the Senedd on Monday 20 March 2023, giving the Welsh Government greater ability to tackle air and noise pollution.

The new Bill is part of a package of measures to improve the quality of the air environment in Wales. It will give powers to Welsh Government to introduce new long-term targets for air quality under a national framework taking account of the latest scientific knowledge including the World Health Organisation Air Quality Guidelines

The Bill will help create low emission zones on Welsh Government trunk roads where needed and will give local authorities more power to tackle vehicle idling.

Air Quality in Bridgend

Local authorities have a statutory duty under Part IV of the Environment Act 1995 & Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 to manage local air quality. Under Section 82 of the Environment Act 1995 the Local Air Quality Management (LAQM) process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether air quality objectives are likely to be achieved.

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138) and Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298). Where the air quality reviews indicate that the air quality objectives may not be met the local authority is required to designate an Air Quality Management Area (AQMA). Action must then be taken at a local level and outlined in a specific Air Quality Action Plan (AQAP) to ensure that air quality in the identified area improves.

[5] https://www.gov.wales/new-powers-tackle-air-and-noise-pollution-will-lead-cleaner-healthier-and-greener-future

In line with the Local Authorities' statutory duties under Part IV of the Environment Act 1995, in 2022 Shared Regulatory Services (SRS) on behalf of BCBC undertook regular air quality monitoring at specifically allocated locations across Bridgend using automated and non-automated principles for ambient air nitrogen dioxide (NO_2) and particulate matter (PM_{10}).

With regards to prioritising ambient air quality sampling locations, the Council adopts a risk-based approach to any allocation of monitoring sites, considering the requirements of The Department for Environment, Food and Rural Affairs' (Defra) Local Air Quality Management (LAQM) Technical Guidance. The designated monitoring locations are assigned based on relevant exposure and where the certain Air Quality Objective levels for a particular pollutant applies. It states that annual mean objectives should apply at "All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc."

Bridgend Council's 2018 APR[6] documented and made the recommendation to implement and raise an Order for an Air Quality Management Area (AQMA), designated to Park Street, Bridgend. On 18th September 2018 BCBC's Cabinet approved the 2018 LAQM APR 2018 for Bridgend. The report examined datasets captured during 2017 and noted that Park Street, Bridgend was an area of particular concern and subsequently an Air Quality Management Area (AQMA) was required. It was reported that two nitrogen dioxide (NO_2) non-automated monitoring locations located at residential facades on Park Street.

The designated AQMA borders the green space area prior to the rear entrance of properties located on Sunnyside Road. The designated area incorporates all north facing properties, including their open space areas between 39 Park Street and 105 Park Street. The boundaries' northern side borders the open space areas that front the south facing properties encapsulating the public access pathway.

[6] https://www.srs.wales/Documents/Air-Quality/Bridgend/7294-7279-Bridgend-Council-2018-Air-Quality-Progress-Report.pdf

Figure 1 – Map of Park Street AQMA

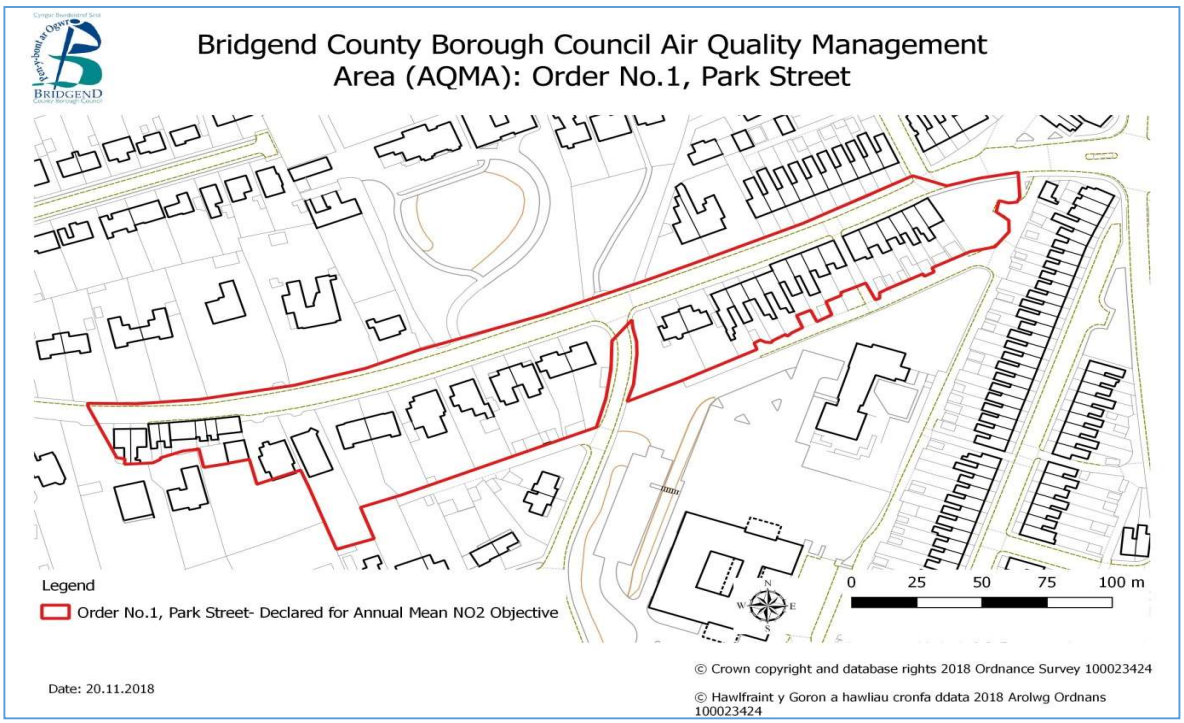
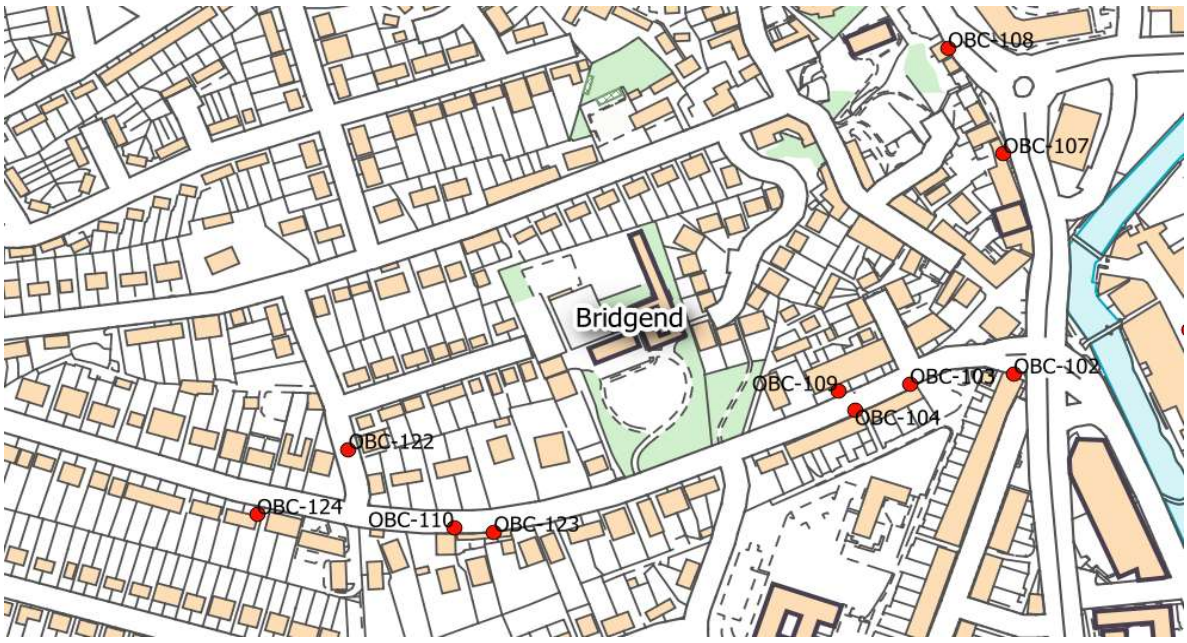


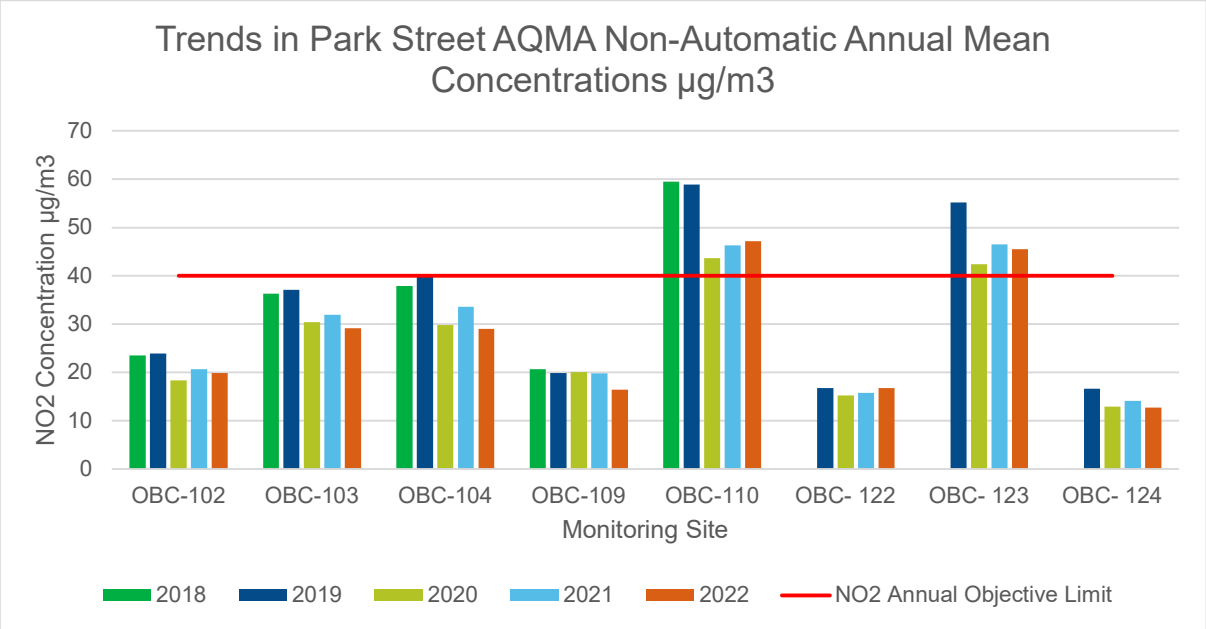
Figure 2 - Non-automatic Nitrogen Dioxide Monitoring Sites Since 2019



Overall, in Bridgend we have seen a downward trend in NO_2 levels since the Covid-19 pre-pandemic period. However, two non-automatic monitoring locations within the AQMA remain in exceedance of the annual air quality objective for nitrogen dioxide. In 2022, all

other monitoring locations within Bridgend county display compliance with all relevant air quality objectives.

Figure 3 - Park Street AQMA Diffusion Tubes Annual Mean Concentration Trends



In Figure 3 it is noted that in 2022, monitoring undertaken at sites OBC-110 & OBC-123, located on Park Street residential facades, exceed the annual average air quality objective set at (40µg/m3) for NO_2. OBC-110 & OBC-123 recorded annual average figures in 2022 of 47.2µg/m3 & 45.5µg/m3 respectively. This represents a reduction in NO_2 concentrations of 12% and 17% at these receptors since 2019.

Sites currently exceeding air quality annual objectives are isolated to one area of Park Street, which experience higher concentrations of pollutants due to the proximity of houses to a heavily trafficked primary route with congestion issues. These issues are compounded by gradients increasing engine load and poor dispersion caused by buildings. All other monitoring locations within Park Street AQMA and across Bridgend currently demonstrate compliance with the applicable air quality objectives.

Shared Regulatory Services (SRS) on behalf of BCBC have been working towards completing an AQAP to address the air quality issues on Park Street. There has been a delay in publishing the Air Quality Action Plan (AQAP) since it's declaration in 2019. This delay was caused by the COVID-19 pandemic and associated restrictions. This prevented traffic consultants from gathering accurate data for traffic outputs required to produce the air quality modelling detailed assessment. In 2022, work continued on delivery of the AQAP. This included public consultations on the mitigation measures within the AQAP. The action plan will be published in 2023.

Actions to Improve Air Quality

The diffusion tube monitoring network within Bridgend has been expanded to include additional sites located in Tondu, Kenfig Hill, Coychurch and Pencoed. These sites were requested due to air quality concerns raised by residents.

In the summer of 2022, work was carried out to upgrade of the traffic lights located at the junction of Park Street and Angel Street, along the A473. The refurbishment of the existing traffic lights was needed as the traffic light system was over 25 years old and the upgrade was essential to safeguard pedestrians, as well as making sure that traffic is managed in the best way possible on what is one of the county borough's busiest routes. The works follow-on from previous work completed on traffic lights at the A473's junction with Broadlands.

A right turn holding lane at the Junction of Park Street with Heol y Nant was implemented in January 2022. This was to be introduced by the developer (Persimmon) of the former Ysgol Bryn Castell site (Llangewydd Road, Cefn Glas) under the requirement of Condition 27 of Planning consent P/18/1006/FUL.

Both the Park Street/ Angel Street junction, and Heol y Nant right turn holding lane options were assessed by air quality modelling within the Park Street AQAP and were deemed to have a positive effect on traffic flows and air quality within Park Street.

Work has continued for the Park Street AQAP, with the assessment of various options that could improve air quality in the area. These options included investigating the benefits of bus electrification and HGV restrictions using Park Street. Modelling carried out in support of these options has found that the implementation of these measures will have little effect on receptors exceeding the NO_2 annual objective.

Local Priorities and Challenges

The priority for the coming year is to publish the AQAP for Park Street AQMA. Air quality monitoring within and around the Park Street AQMA will continue and be prioritised during this time.

How to Get Involved

BCBC welcomes any correspondence relating to air quality enquiries or concerns. Shared Regulatory Services (SRS) Specialist Services Team represents BCBC for air quality and therefore is contactable via the webpage www.srs.wales/en/Home.aspx OR via their direct team email AirQuality-SRSWales@valeofglamorgan.gov.uk.

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1 Actions to Improve Air Quality

Previous Work in Relation to Air Quality

First Round of Review and Assessment

Between 1999 and 2001, Bridgend County Borough Council published reports corresponding to stages 1, 2 and 3 of the first round of review and assessment of air quality. Seven key pollutants were examined (carbon monoxide, benzene, 1,3-butadiene, lead, nitrogen dioxide, fine particles (PM_{10}) and sulphur dioxide). These assessments predicted no exceedances of any of the objectives. It concluded that to fulfil the requirements of the Environment Act 1995, air quality should be reviewed and assessed again in 2003.

Second Round of Review and Assessment

Following new technical and policy guidance issued by Defra, Bridgend County Borough Council published its first Updating and Screening Assessment (USA) in June 2003. Of the seven pollutants subjected to the updating and screening assessment process, it was concluded that the likelihood of the air quality objectives for carbon monoxide, benzene, 1,3-butadiene, lead, and sulphur dioxide being exceeded was negligible and that it was not necessary to carry out a detailed assessment of any of these pollutants. However, the updating and screening assessment for nitrogen dioxide and PM_{10} revealed gaps in the data gathered and concluded that there was evidence to suggest non-compliance with the air quality objectives for PM_{10} and NO_2 at three locations resulting from road traffic emissions. It was suggested that there was a requirement to continue to a Detailed Assessment for the following locations:

- A48 Ewenny Cross, Bridgend
- The western end of Cowbridge Road, Bridgend
- The western end of the Bridgend Cross Valley Link Road.

In addition, it was also recommended to carry out a co-location exercise to determine the bias correction for the passive nitrogen dioxide detector tubes provided and analysed by Severn Trent Laboratories.

In July 2005, Bridgend County Borough Council's Local Air Quality Management Progress Report recommended that:

- All currently held data should be, as far as possible, ratified.

- Data shall continue to be gathered from the three sites identified in the June 2003 USA to enable conclusions to be drawn on the current and future air quality at these locations. The results will be presented in a Detailed Assessment of Air Quality at these locations by 31st December 2005.

- The mobile PM_{10} and NO_x monitoring station should be added to the Welsh Air Quality Forum Network of sites and receive appropriate Quality Assurance and Quality Control (QA/QC) to validate any data gathered.

In March 2006 a Detailed Assessment for Nitrogen Dioxide and Particles (PM_{10}) was and concluded that the current air quality objectives for nitrogen dioxide and particles PM_{10} are being met and that the 2010 Air Quality Daughter Directive limit value for nitrogen dioxide will also be achieved at the three road junctions assessed. However, it also recommended that monitoring data from the three road junction sites identified in the June 2003 USA should continue to be gathered to enable assessment of future air quality at these locations.

Third Round of Review and Assessment

Bridgend County Council published its second USA in May 2006. The assessment concluded that there was no requirement to proceed to a detailed assessment for any pollutant in Bridgend County Borough.

The Council published Progress Reports in 2007 and 2008. Both reports coincided with one another, issuing similar conclusions and recommendations. They indicated that no air quality objectives prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002 will be breached at any relevant locations.

In terms of monitoring locations, the reports highlighted the following:

- Data on NO_2 concentrations will continue to be gathered at relevant locations adjacent to A48 Ewenny Cross, the western end of Cowbridge Road and at Tondu Road on the western end of the Bridgend Cross Valley Link Road.

- Monitoring of PM_{10} and NO_2 will continue at Kenfig Hill adjacent to the opencast coal site operated by Celtic Energy Ltd.

- Monitoring of NO_2 and sulphur dioxide (SO_2) will take place at relevant locations adjacent to Rockwool Ltd, Wern Fawr, Pencoed when the new factory extension becomes operational.

Fourth Round of Review and Assessment

The Bridgend County Borough Council published its third USA in June 2009. There was no evidence of any significant breaches of the air quality objectives prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002, at any relevant locations. The report did however draw attention upon an ongoing trend for NO_2 concentrations at Ewenny Cross, Bridgend, and Tondu Road, Bridgend, at the façade of the nearest houses, to be at or close to the air quality objective for NO_2 for 2007. It was decided that monitoring would continue at the two highlighted sites as part of an ongoing Detailed Assessment to be produced later that year.

The 2010 Progress Report stated the following:

- The conclusions for the new monitoring data in relation to Ewenny Cross and Tondu Rd show that Ewenny Cross has exceeded the annual mean National Air Quality Objective for nitrogen dioxide (NO_2) and this will be reported in depth in the Detailed Assessment to be produced later this year.
-

The results for nitrogen dioxide at Tondu Rd show that the annual mean National Air Quality Objective for nitrogen dioxide (NO_2) has not been exceeded. However, in view of the results which are very close to the objective, monitoring will continue at this location for at least another year.

The 2010 Detailed Assessment for Ewenny Cross was subsequently submitted and stated:

This Detailed Assessment of Air Quality has shown that the current air quality objectives for nitrogen dioxide (NO_2) are not being met at the southwestern sector of Ewenny Cross, Bridgend but are being met at the Bridgend Cross Valley Link, Tondu Road, Bridgend.

In view of the above, the following recommendations have been made:

-Monitoring should continue at its present level at the Bridgend Cross Valley Link, Tondu Road and at Ewenny Cross, Bridgend.

-A continuous monitor, together with a meteorological station, should be installed at or as near to the southwestern sector of Ewenny roundabout as is practical.

Following discussions with Welsh Assembly Government and University of the West of England (UWE) it was decided that the Detailed Assessment should remain ongoing and that any decision to declare an AQMA for Ewenny Cross should be delayed until continuous monitoring data for 2010 has been collated and analysed.

The 2011 Progress report stated the following:

Following the Detailed Assessment submitted in June 2010 and the response from WAG, the Authority decided, in consultation with WAG and UWE to defer a decision to declare an AQMA for Ewenny Cross until a full calendar year of continuous monitoring data had been collated and analysed.

Due to equipment failure and contractual issues, continuous monitoring at Ewenny Cross has been significantly delayed. Continuous sampling commenced in March 2011 as did a diffusion tube co-location study.

The conclusions from annualised monitoring data obtained since the last report show that one sampling point at Ewenny Cross has exceeded the annual mean National Air Quality Objective for nitrogen dioxide (NO_2). The other nine around the Cross remain within the annual mean National Air Quality Objective.

The results for nitrogen dioxide diffusion tube monitoring at Tondu Rd show that the National Air Quality Objective's annual mean for nitrogen dioxide (NO_2) has not been exceeded. However, results are very close to the objective and monitoring will continue at this location for another year.

No continuous PM_{10} data could be retrieved for South Cornelly or Kenfig Hill due to equipment failure.

The nitrogen dioxide diffusion tube sampling locations in Maesteg town centre which were set up in July 2010 following local concerns have shown to date, an exceedance at one sampling point. As a result, more monitoring location points have been put in place and will be reported upon in the next USA report.

Fifth Round of Review and Assessment

Bridgend County Council published its fourth USA May 2012. In addition, a Detailed Assessment was submitted for Ewenny Cross. The reports identified:

There were no indications of any significant breaches of the air quality objectives prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002.

There was an exceedance of the objective for Nitrogen Dioxide at one location in Maesteg. However, this was marginal and the other sample points in the immediate vicinity were below the National Objectives for Nitrogen Dioxide. Monitoring continued at this site and extra sample sites, in addition to those already in place were set up where practicable. The data so far for this location, in view of the above, does not suggest that a Detailed Assessment is necessary at this time, although this will be subject to review as more data is collected and analysed.

The positioning of an Automated Continuous NOx Analyser and co-location study at Ewenny Cross has provided robust information as to the air quality situation and indicates that Nitrogen Dioxide levels do not exceed the National Air Quality Objectives. This Automated Continuous NOx Analyser will be retained at this site to gather more data over the coming year.

The Detailed Assessment 2012 completed in tandem with this Report concluded that it is not necessary at this point in time to proceed with declaring an Air Quality Management Area at Ewenny Cross. The situation will continue to be monitored by way of the co-location study utilising the Automated Continuous NOx Analyser and the numerous Nitrogen Dioxide Diffusion Tube sites situated at Ewenny Cross.

The 2013 Progress report provided the following findings and recommendations:

- The Report has not identified a need to proceed to a Detailed Assessment for any pollutant.

- The Report has identified a need to continue monitoring for Nitrogen Dioxide in Maesteg Town Centre.

- Monitoring of Nitrogen Dioxide and PM_{10} will continue at the same sites as at the end of 2012.

The Automated Continuous NOx Analyser and co-location study will continue at Ewenny Cross Roundabout for this year to acquire more robust data. In the light of the acquired data, the positioning and possible relocation of the Automatic Monitoring Station will be decided at the end of 2013.

Bridgend County Borough Council will submit a Progress Report in May 2014.

The 2014 Progress report stated the following:

- the exception of Ewenny Cross Roundabout as highlighted above; the Progress Report has not identified a need to consider proceeding to a Detailed Assessment for any other pollutant.

- Monitoring of Nitrogen Dioxide and PM_{10} will continue at the same sites as at the end of 2013.

- Bridgend County Borough Council will submit a progress report in May 2015.

Sixth Round of Review and Assessment

Bridgend County Council published its fourth USA September 2015. The assessment identified no need to proceed to a Detailed Assessment for any pollutant.

2016 Annual Progress Report highlighted no concerns, and no objectives were exceeded.

2017 Annual Progress Report

BCBC's 2017 Annual Progress Report highlighted that air quality within Bridgend County Borough continued to meet the relevant air quality objectives as prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002.

Reporting described the amendments to the non-automatic NO_2 network with 10 new locations commissioned for 2017.

Quality and technical issues were outlined regarding the automatic monitoring at Ewenny Cross Roundabout, for both NO_2 and PM_{10}. The inability to conform to the frequency of calibration checks and technical issues faced with the PM_{10} Met One E Sampler were noted. Data capture was also an issue at the Rockwool Ltd site for SO_2 monitoring, recorded at 47.1%.

2018 Annual Progress Report

BCBC's 2018 Annual Progress Report highlighted elevated and exceeding annual average levels of nitrogen dioxide (NO_2) and outlined the requirement to proceed to implement and

formalise an Air Quality Management Area (AQMA) Order for Park Street, Bridgend. On January 1st 2019 an official AQMA Order was raised for Park Street, Bridgend, designated on the basis of exceeding annual average NO_2 air quality objectives/ limit values.

2019 Annual Progress Report

BCBC's 2019 Annual Progress Report highlighted general compliance for monitoring undertaken in 2018, however it did note the elevated and exceeding annual average levels of nitrogen dioxide (NO_2), especially within and close to the established Park Street AQMA boundary. The report outlined the works initiated to develop an effective Air Quality Action Plan (AQAP) to support the AQMA. In doing so the report highlighted the commitment of a designated work steering group to develop appropriate mitigation measures that would not only benefit the Park Street AQMA "hot spot" but would also generate wider air quality benefits to improve and protect the amenity of public health. The report specified commitments to gather public engagement on the AQAP's development via public drop-in sessions through the course of December 2019. It outlined how suggested mitigation measures would be assessed and indicated that detailed transportation and air quality modelling would be required to quantify the impacts derived by any preferred options. The report also noted the need for enhanced monitoring capabilities in the form of automated monitoring within the Park Street AQMA to improve understanding and provide a platform for public to access data.

2020 Annual Progress Report

BCBC'S 2020 Annual Progress Report showed continued elevated and exceeding levels of NO2 at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. Development of Air Quality Action Plan (AQAP) continued, and full approval was given to locate an automatic monitoring station within the Park Street, Bridgend AQMA. Despite the areas of concern within the Park Street AQMA, compliance with the air quality objectives was achieved at all other monitoring locations.

2021 Annual Progress Report

The 2021 Annual Progress Report shown a reduction in NO_2 concentrations at all locations, although still slightly exceeding the annual air quality objective at two locations

within Park Street. Monitoring continued at all locations within the Park Street AQMA with the addition of an automatic air quality monitoring station in December 2020.

2022 Annual Progress Report

Annual average datasets outline continued elevated and exceeding levels of NO_2 at two sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2022 at sites OBC-110 & OBC-123, located on Park Street at residential facades exceed the annual average air quality objective set at (40µg/m^3) for NO_2. All automated and non- automated datasets show compliance with the air quality objectives at every other monitored location.

Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (Please see Appendix A)). After declaring an AQMA the authority must prepare an Air Quality Action Plan (AQAP) within 18 months setting out measures it intends to put in place to improve air quality to at least the air quality objectives, if not even better. AQMA(s) are seen by local authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

A summary of AQMAs declared by Bridgend County Borough Council can be found in Table 1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://www.bridgend.gov.uk/my-council/consultations/closed-consultations/park-street-air-quality-management-area/

Table 1 - Declared Air Quality Management Areas

AQMA	Relevant Air Quality Objective(s)	Comments on Air Quality Trend	Town	Description	Action Plan
Park Street	NO_2 annual mean	This year's monitoring results indicate an improvement in air quality compared to the pre-Covid-19 period	Bridgend	The designated AQMA borders the green space area prior to the rear entrance of properties located on Sunnyside Road. The designated area incorporates all north facing properties, including their open space areas between 39 Park Street and 105 Park Street. The boundaries' northern side borders the open space areas that front the south facing properties encapsulating the public access pathway	Draft being finalised

AQMA boundary maps within Bridgend can be viewed at https://www.bridgend.gov.uk/my-council/consultations/closed-consultations/park-street-air-quality-management-area/ and are included in Appendix D.

Implementation of Action Plans

BCBC has taken forward a number of measures during in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in **Error! Reference source not found.**. More detail on these measures can be found in the Air Quality Action Plan relating to any designated AQMAs.

Air Quality Action Plans are continuously reviewed and updated whenever deemed necessary, but no less frequently than once every five years. Such updates are completed in close consultation with local communities.

In 2022, public consultation was carried out for the draft AQAP. This consultation included an online survey and two drop-in sessions carried out at the Civic Offices, Angel Street, Bridgend.

Key measures listed in the AQAP mitigation measures that have been completed in 2022 are:

- Upgrading traffic signals for the Park Street Angel Street Junction.
- Implementation of a right-hand holding lane for the Park Street / Heol y Nant Junction.

BCBC expects the following measures to be completed over the course of the next reporting year:

- Publish the finalised AQAP
- Implementation of other mitigation measures included within the AQAP, subject to review and cabinet approval.

Table 2 - Proposed Mitigation Measures for Park Street AQAP

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
1	Public Health information campaign including additional automatic monitoring	Public Information	Via the Internet	2023	2027	. Local Authority Environmental Health, BCBC, Local Communities Forum	DEFRA AQ Grant Funding	Yes	Grant Funding agreed. Awaiting Bridgend Cabinet approved	£100k - £150k	Subject to approval	Unknown.	The number of hits on website. Number of initiatives delivered. Delivery of a public education campaign. Cross reference obtained air quality results to the applicable air quality objectives. Improvements to those figures outlined in Bridgend LTP 2015 using data acquired by 2011 Census.	Funding approved from Defra AQ grant. Awaiting approval from Bridgend Cabinet	Scheme to be delivered by March 2024 due to funding.
2	Support the creation of a local "Air Quality Action Group".	Public Information	Via the Internet/ Leaflets/ Other	2023	Unknown	Local Communities Forum	Measure could be included in funding for			As above	Subject to approval	Unknown.	Number of associated members.	No progress to date	

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							measure 1.								
3	Increase the monitoring capabilities of the Council with investment in more air quality monitoring techniques. Creation of an online platform linked to the Air Quality Index.	Public Information	Via the internet	2023	2027	. Local Authority Environmental Health, BCBC, Local Communities Forum	DEFRA AQ Grant Funding	Yes	Funding agreed by Welsh Government. Awaiting Bridgend Cabinet approved	As per measure 1. To be included in Public Health Information project.	Subject to approval	Unknown.	Cross reference obtained air quality results to the applicable air quality objectives.	Funding approved from Defra AQ grant. Awaiting approval from Bridgend Cabinet	Scheme to be delivered by March 2024 due to funding.
4	Electronic "pollutant signage" within AQMA and local area	Public Information /Traffic management	Other	Unknown		. Local Authority Environmental Health, BCBC	Unknown			£50k - £250k		Not directly applicable – NOx reduction not estimated	Improved Public awareness/ Increase in the use of sustainable alternatives.	No progress to date	

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5	Signs and banners for engine idling. Signage at key intersections, near junctions and on public transport / taxis encouraging people to switch off engines when traffic comes to a stop.	Public Information /Traffic management	Other	Unknown	Unknown	Local Communities Forum	Unknown			£50k - £250k		Not directly applicable – NOx reduction not estimated	Improved Public awareness/ Increase in the use of sustainable alternatives.	No progress to date	
6	Develop Supplementary Planning Guidance (SPG) to provide a specific guidance for air quality in accordance with new developments.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Unknown	Unknown	. Local Authority Environmental Health, BCBC	Unknown			< £10k		Not directly applicable – NOx reduction not estimated	Production of an SPG.	No progress to date	.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
7	Planning guidance for the provision of Electric Vehicle Charging Points. To note; EV points are now compulsory in England	Policy Guidance and Development Control	Other	Unknown		BCBC	Unknown			< £10k		Not directly applicable – NOx reduction not estimated	Number of properties where a power spur for an electric vehicle charge point is installed. Number of planning applications approved with a vehicle charge point as an advisory or required condition.	No progress to date	
8	Revise BCBC's Walking and Cycling Strategy; Revise the existing 2009 document	Policy Guidance and Development Control/ Promoting Travel Alternatives	Promotion of cycling	Unknown	Unknown	BCBC	Unknown			< £10k		Not directly applicable – NOx reduction not estimated	Production of a revised document.	No progress to date	
9	Endorse SP19, Biodiversity and Development. Further influence the use of green infrastructur	Policy Guidance and Development Control	Other	Unknown	Unknown	BCBC	Unknown			< £10k		Not directly applicable – NOx reduction not estimated	Number of trees planted.	No progress to date	.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
	e for new developments.														
10	Implement 'smoke control zone' for Bridgend. Wood burners installations would need authorisation to operate and receive permissions in accordance with the Clean Air Act.	Policy Guidance and Development Control	Other	Unknown		BCBC	Unknown			Cost unknown		Not directly applicable – NOx reduction not estimated. . Not necessarily applicable to reduction of emissions on Park Street as source of problem is from vehicles. Unlikely to impact NO_2 exceedances at effected receptors	Number of nuisance complaints generated.	No progress to date	

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
11	School Active Travel Plans	Promoting Travel Alternatives	Incentivise active travel campaign & infrastructure	Unknown	Unknown	BCBC	Unknown			< £10k		Not directly applicable – NOx reduction not estimated	BCBC/ SRS/ Living Streets "WOW" Scheme/ Sustrans/ WG Young Dragons Educational Package/ Global Action Plan	No progress to date	
12	Encourage/ Facilitate homeworking. BCBC/ SRS is one of the largest employers in Bridgend and therefore could look to adopt more flexible/ agile working patterns	Promoting Travel Alternatives	Encourage / Facilitate home working.	Unknown	Unknown	BCBC	Unknown			< £10k		Not directly applicable – NOx reduction not estimated	Produce Healthy Travel Charter. Number of individuals enrolled on programme.	No progress to date	.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
13	Work with local businesses to develop active travel to work programmes. Cardiff Staff Travel Charter currently being rolled out but only for public sector establishments.	Promoting Travel Alternatives	Other	Unknown		BCBC/ Cwm Taf Morgannwg University Health Board/ Public Health Wales.	Unknown			< £10k		Not directly applicable – NOx reduction not estimated	Produce Healthy Travel Charter. Number of individuals enrolled on programme.	No progress to date	

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
14	Park and Ride facilities to be implemented at strategic sites (Broadlands) / Shuttle bus service linking Bridgend train station to strategic points (Broadlands/ Hospital/ Coity/ McArthur Glen). There is also the potential to look at shared shuttle service for persons accessing proposed Health Centres.	Alternatives to private vehicle use	Bus Park and Ride scheme	Unknown	Unknown	BCBC	Unknown			£250k - £1m		NOx reduction not estimated although a reduction in cars will mean benefits in air quality and congestion.	Bus patronage figures.	No progress to date	

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
15	Anti-idling implemented as TROs specific to sensitive areas such as outside schools, hospitals, care homes, as well as Park Street AQMA	Traffic Management	Anti-idling enforcement	Unknown	Unknown	BCBC	Unknown			<10k		Not directly applicable – NOx reduction not estimated	Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	No progress to date	.
16	Introduce a pilot scheme "20mph speed limit" to Park Street.	Traffic Management	Anti-idling enforcement	Unknown	Unknown	BCBC	Unknown			Cost unknown		Unlikely to improve air quality on Park Street, as the air quality issue is caused by slow moving and queuing traffic.	Evaluation of annual air quality datasets for NO_2. Reduction in vehicle speeds via traffic flow analysis Any marked improvement in collision/ incident rates. Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	Nationwide implementation of 20mph limit in residential September 2023.	

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
17	Ghost right hand turn onto Heol-Y-Nant.	Traffic Management	Strategic highway improvement			BCBC				<£10k		Exact reduction unknown. However, improvements in NO_2 reductions are evident since the implementation of the measure	Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	Measure completed in February 2022.	Measure included in AQAP detailed assessment as part of 'do minimum' scenario.
18	Deny all access onto St Leonard's Road from Park Street for all traffic movements.	Traffic Management	Strategic highway improvement	Unknown	Unknown	BCBC	Unknown			£10k - £50k		Modelling for 'do something' scenario predicts a decrease in NO2 emissions of up to 5.8µg/m3 when with addition of measure 20.	Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	No progress to date	Measure included in AQAP detailed assessment as part of 'do something' scenario.
19	Deny a through route movement from Angel Street onto Park Street.	Traffic Management	Strategic highway improvement	Unknown	Unknown	BCBC	Unknown			Cost unknown		Unknown.	Reduced capacity on Park Street captured via traffic flow analysis.		

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
20	Optimise the traffic signals at the Tondu Rd/ Park Street/ Angel Street Junction- Adopt a MOVA system.	Traffic Management	Strategic highway improvement			BCBC				£10k - £50k		Modelling for 'do something ' scenario predicts a decrease in NO2 emissions of up to 5.8µg/m3 as part of a 'do something ' scenario with measure 18	Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	Measure completed in February 2022.	Completed September 2022. Measure included in AQAP detailed assessment as part of 'do something' scenario.
22	Bus Programme- Strategic Bus Network. Buses not to use St Leonard's Road due to the experienced access constraints onto and off Park Street.	Transport Planning and Infrastructure	Bus Route Improvements	Unknown	Unknown	BCBC	Unknown			£50k - £250k		Unknown.	Customer satisfaction questionnaires from the bus operators.	No progress to date	

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
23	HGV restrictions for Park Street.	Traffic Management / Promoting Low Emission Transport	UTC, Congestion management, traffic reduction	Unknown	Unknown	BCBC	Unknown			£10k - £50k		Dispersion modelling indicates this option will have very little effect on reducing NO2 concentrations at the worst effected receptors.	Cross reference obtained air quality results on Park Street to the applicable air quality objectives. Review data gathered via modelling assessment	Modelling has been carried out to assess measure.	
24	Bus Electrification for buses using Park Street	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Unknown	Unknown	BCBC	Unknown			£250k - £1m		Dispersion modelling indicates this option will have very little effect on reducing NO2 concentrations at the worst effected receptors.	Cross reference obtained air quality results on Park Street to the applicable air quality objectives. Review data gathered via modelling assessment	Modelling has been carried out to assess measure.	

Table 3 - Cost Benefit Analysis for Park Street AQAP Mitigation Measures

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	**Cost** 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	**Air pollution reduction** 10 = greatest air quality gain 1 = least air quality gain	**Exposure reduction** 10 = greatest exposure reduction 1 = least exposure reduction	**Score = cost x benefit**	**Rank** **1 = most cost benefit effective**
20	Optimise the traffic signals at the Tondu Rd/ Park Street/ Angel Street Junction.	4	6	2	32	1
1	Public health information campaign.	5	2	4	30	2
15	Anti-idling implemented as TROs specific to sensitive areas such as outside schools, hospitals, care homes, as well as Park Street AQMA.	5	4	2	30	2
18	Deny all access onto St Leonard's Road from Park Street for all traffic movements.	4	5	2	28	3

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	**Cost** 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	**Air pollution reduction** 10 = greatest air quality gain 1 = least air quality gain	**Exposure reduction** 10 = greatest exposure reduction1 = least exposure reduction	**Score = cost x benefit**	**Rank 1 = most cost benefit effective**
17	Ghost right hand turn onto Heol-Y-Nant.	5	4	2	25	3
6	Develop Supplementary Planning Guidance (SPG).	5	3	2	25	4
16	Introduce a pilot scheme“20mph speed limit” to Park Street.	5	3	2	25	5

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	**Cost** 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	**Air pollution reduction** 10 = greatest air quality gain 1 = least air quality gain	**Exposure reduction** 10 = greatest exposure reduction1 = least exposure reduction	**Score = cost x benefit**	**Rank 1 = most cost benefit effective**
7	Planning guidance for the provision of Electric Vehicle Charging Points.	5	3	1	20	6
2	Support the creation of a local “Air Quality Action Group”.	5	2	1	15	7
10	Implement ‘smoke control zone’ for Bridgend.	5	2	1	15	7
12	Encourage/ Facilitate homeworking.	5	2	1	15	7

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	**Cost** 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	**Air pollution reduction** 10 = greatest air quality gain 1 = least air quality gain	**Exposure reduction** 10 = greatest exposure reduction 1 = least exposure reduction	**Score = cost x benefit**	**Rank 1 = most cost benefit effective**
14	Park and Ride facilities to be implemented at strategic sites.	2	4	3	14	8
4	Electronic "pollutant signage" within AQMA and local area.	3	2	2	12	9
5	Signs and banners for engine idling	3	2	2	12	9
11	School Active Travel Plans	4	2	1	12	9
22	Bus Programme- Strategic Bus Network.	3	2	2	12	9
3	Increase the monitoring capabilities of the Council.	4	1	2	12	9
19	Deny a through route movement from Angel Street onto Park Street.	4	2	1	12	9

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	**Cost** 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	**Air pollution reduction** 10 = greatest air quality gain 1 = least air quality gain	**Exposure reduction** 10 = greatest exposure reduction 1 = least exposure reduction	**Score = cost x benefit**	**Rank 1 = most cost benefit effective**
23	HGV restrictions for Park Street.	4	2	1	12	9
24	Bus Electrification for buses using Park Street	1 -2	2	1	4	11

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

Summary of Monitoring Undertaken in 2022

2.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how results compare with the objectives.

SRS on behalf of BCBC undertook automatic (continuous) monitoring at one site during 2022. Table 4 presents the details of the site. This monitoring station is part of the Welsh Automatic Urban pollution Monitoring Network. The equipment is calibrated by an SRS Environment Team Officer on fortnightly basis and serviced and maintained by Matts Monitors Ltd on a six-monthly basis. Data obtained is checked for validation and ratified by Ricardo Energy and Environment. Further information and data for this monitoring station can also be found at https://airquality.gov.wales/.

A map showing the location of the monitoring site is provided in Figure 4.

There is also a Sulphur Dioxide (SO_2) monitoring station located in Soar Chapel Rhiwceilog. The Rhiwceilog monitoring site is managed and maintained by Rockwool Ltd. Within the monitoring unit is an API AMX monitor capable of giving continuous fifteen-minute averages of sulphur dioxide (SO_2) concentrations. Rockwool Environmental Officers have operated the continuous ambient SO_2 monitor since 2008/9. The equipment is calibrated by an Environment Officer at Rockwool on a fortnightly basis and serviced and maintained by Enviro Technology on a six-monthly basis. Data obtained is checked for validation and ratified by Rockwool's Environment Officer. As in previous years, there were no exceedances of SO_2 Air Quality Objectives in 2022.

It is not a statutory requirement to include SO_2 monitoring results in an Annual Progress Report. Therefore, due to continued compliance with SO_2 Air Quality Objectives, further details and figures from SO_2 monitoring at this location are not included in this report.

2.1.2 Non-Automating Monitoring Sites

SRS on behalf of BCBC undertook non- automatic (passive) monitoring of NO_2 at 38 sites during 2022. Table 5 presents the details of the sites.

Maps showing the location of the monitoring sites are provided in Figure 5 to Figure 14. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Table 4 - Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with (Named) AQMA?	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	Monitoring Technique	Inlet Height (m)	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
AQMA1	Bridgend Park Street AQMA	Roadside	Y	290040	179704	NO2, PM10	Chemiluminescence/ Beta Attenuation Monitor with Gravimetric Equivalence	1.5	4	5.5	1.5

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

Figure 4 - Map of Automatic Monitoring Site

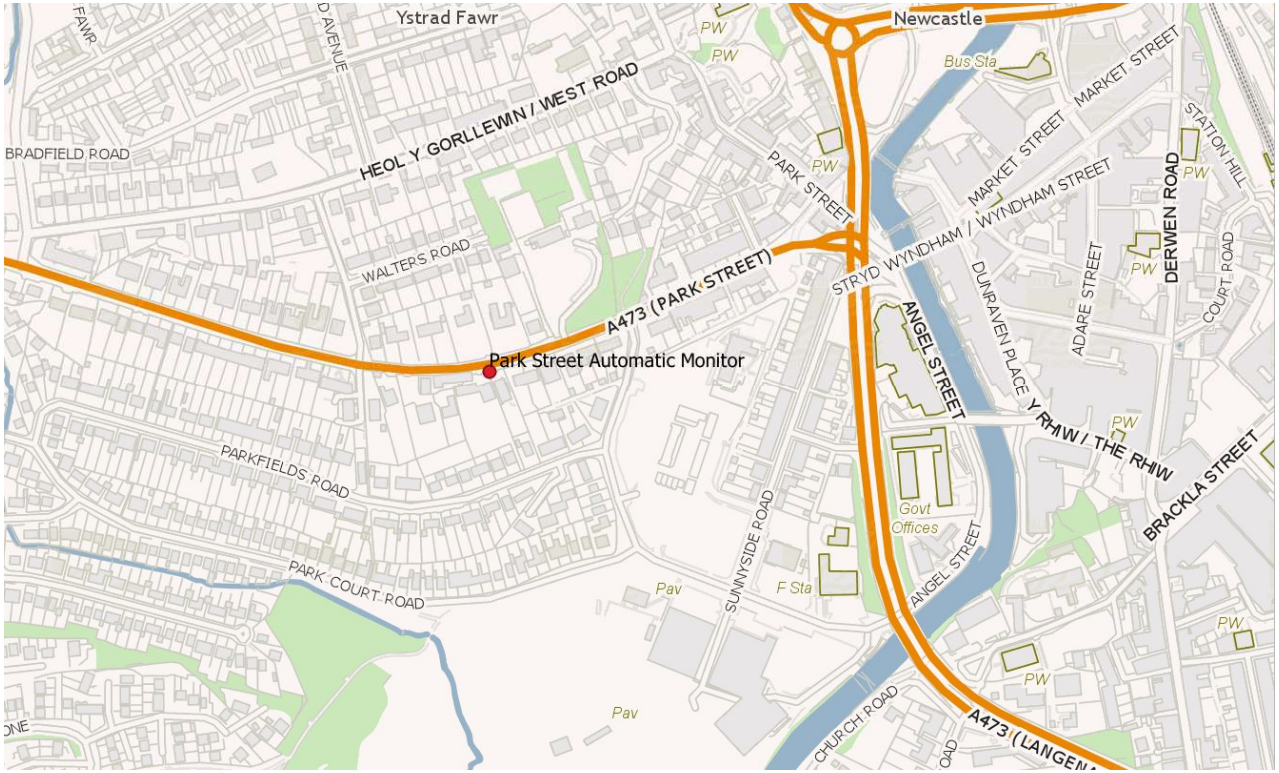


Table 5 - Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
OBC-107	17 Tondu Road, Bridgend	Roadside	290347	179959	NO2	No	0.0	2.0	No	1.5
OBC-108	43 Tondu Road, Bridgend	Roadside	290311	180032	NO2	No	0.0	0.9	No	1.5
OBC-102	4 Sunnyside	Roadside	290354	179807	NO2	Park Street AQMA	0.0	3.0	No	1.5
OBC-103	39 Park Street	Roadside	290250	179782	NO2	Park Street AQMA	0.0	1.2	No	1.5
OBC-104	51 Park Street	Roadside	290286	179800	NO2	Park Street AQMA	0.0	1.1	No	1.5
OBC-109	32 Park Street	Roadside	290239	179795	NO2	Park Street AQMA	0.0	7.5	No	1.5
OBC-122	Post on St Leonards Road	Kerbside	289919	179755	NO2	No	0.0	0.9	No	1.5
OBC-123	93 Park Street Bridgend	Roadside	290014	179698	NO2	Park Street AQMA	0.0	0.5	No	1.5
OBC-124	133 Park Street	Roadside	289859	179710	NO2	No	0.0	7.0	No	1.5
OBC-110	101/103 Park Street	Roadside	289988	179701	NO2	Park Street AQMA	0.0	0.9	No	1.5
OBC-131-1, OBC-	Park Street Co-location 3	Roadside	290041	179303	NO2	Park Street AQMA	0.0	1.0	Yes	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
131-2, OBC-131-3										
OBC-101	Bridgend Town Centre	Urban Centre	290469	179837	NO2	No	0.0	1.0	No	1.5
OBC-111	01 Cowbridge Road	Roadside	290700	179305	NO2	No	0.0	5.0	No	1.5
OBC-105	65 Cowbridge Road	Roadside	290899	179185	NO2	No	0.0	4.1	No	1.5
OBC-106	38/40 Cowbridge Road	Kerbside	290826	179210	NO2	No	0.0	1.0	No	1.5
OBC-121	29 Heol Tre Dwr	Roadside	291540	178734	NO2	No	0.0	5.0	No	1.5
OBC-112	33 Cowbridge Road	Roadside	290798	179244	NO2	No	0.0	1.0	No	1.5
OBC-113	127 Priory Avenue	Roadside	290616	178394	NO2	No	0.0	10.0	No	1.5
OBC-115	105 Ewenny Road	Roadside	290667	178529	NO2	No	0.0	12.0	No	1.5
OBC-128	25 Mill Street Maesteg	Roadside	286218	189805	NO2	No	0.0	2.0	No	1.5
OBC-125	60 Commercial Street, Maesteg	Roadside	285299	191136	NO2	No	0.0	2.0	No	1.5
OBC-135	35 Maesteg Road, Tondu	Roadside	289402	184461	NO2	No	0.0	2.0	No	1.5
OBC-144	3 Moriah Place	Roadside	283720	182918	NO2	No	0.0	4.0	No	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
OBC-097	22 Coity Road, Bridgend	Roadside	290687	180185	NO2	No	0.0	5.0	No	1.5
OBC-116	20 Hendre Road, Pencoed	Roadside	295886	181642	NO2	No	0.0	1.0	No	1.5
OBC-117	47 Hendre Road, Pencoed	Roadside	295641	181687	NO2	No	0.0	8.0	No	1.5
OBC-129	Wern Fawr (Near Rockwool)	Industrial	296439	184111	NO2	No	0.0	50	No	1.5
OBC-133	Coychurch Road, Pencoed	Kerbside	295899	181363	NO2	No	4.0	1.0	No	1.5
OBC-136	30 Maerdy Park	Roadside	295588	180916	NO2	No	0.0	5.0	No	1.5
OBC-120	105 New Road. Porthcawl	Roadside	282264	177237	NO2	No	0.0	2.0	No	1.5
OBC-126	Tremains Guest House,Tremains Road, Bridgend	Kerbside	291125	179517	NO2	No	0.0	8.0	No	1.5
OBC-127	Coychurch Road/Longacre, Brackla	Roadside	292236	179473	NO2	No	2.0	2.0	No	1.5
OBC-130	A4061 / Opposite Mason Arms	Roadside	291386	184168	NO2	No	0.0	1.5	No	1.5
OBC-132	A4061 / Meadow View Signpost	Roadside	293418	186662	NO2	No	0.5	2.0	No	1.5
OBC-137	Main Road, Coychurch	Roadside	294309	179872	NO2	No	4.0	2.0	No	1.5
OBC-138	A473, Coychurch	Kerbside	294218	179795	NO2	No	4.0	1.5	No	1.5

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

Figure 5 - Non-Automatic Monitoring Sites in and around Park Street AQMA and Bridgend Town Centre

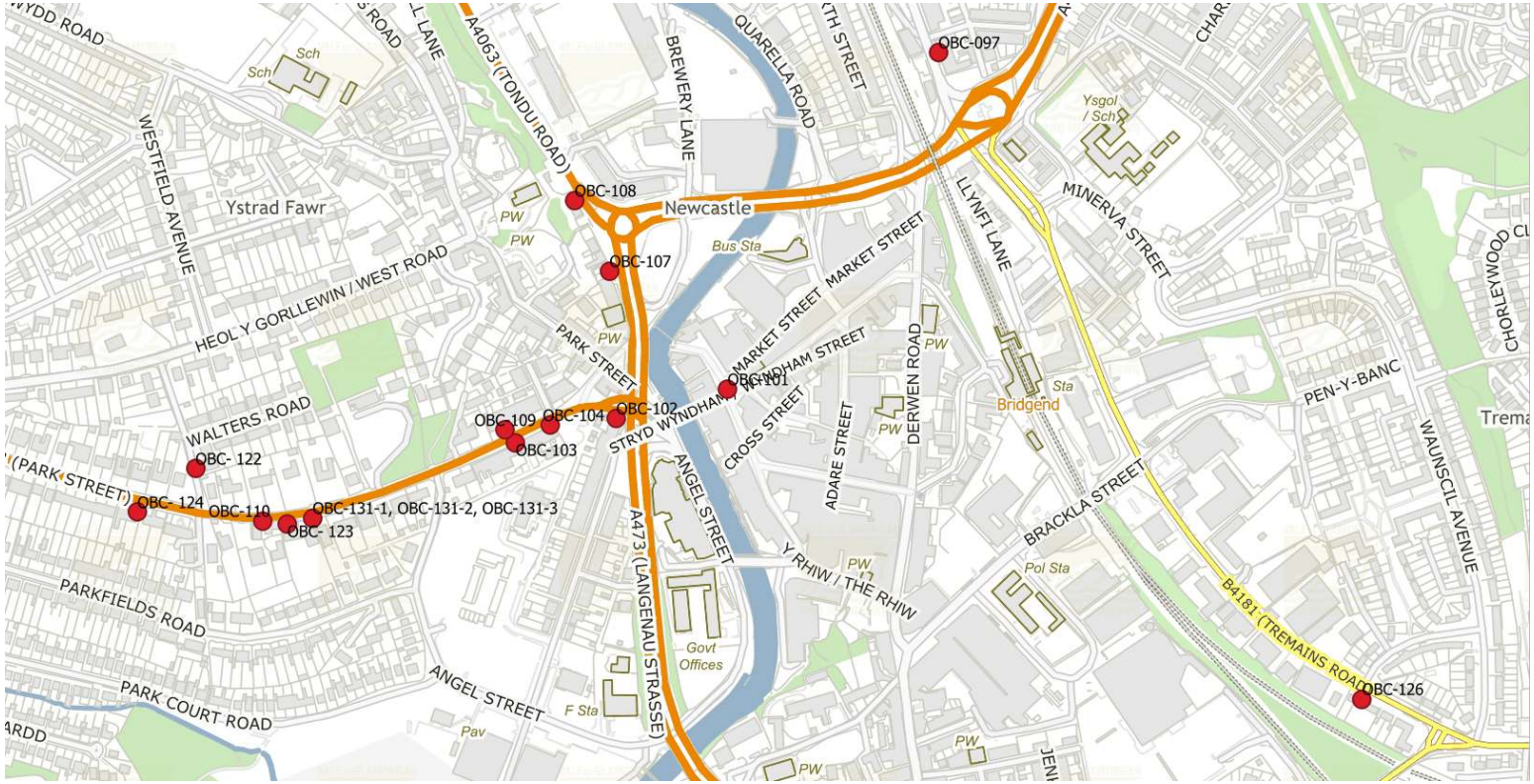


Figure 6 - Non-Automatic Monitoring Sites on A473 Cowbridge Road

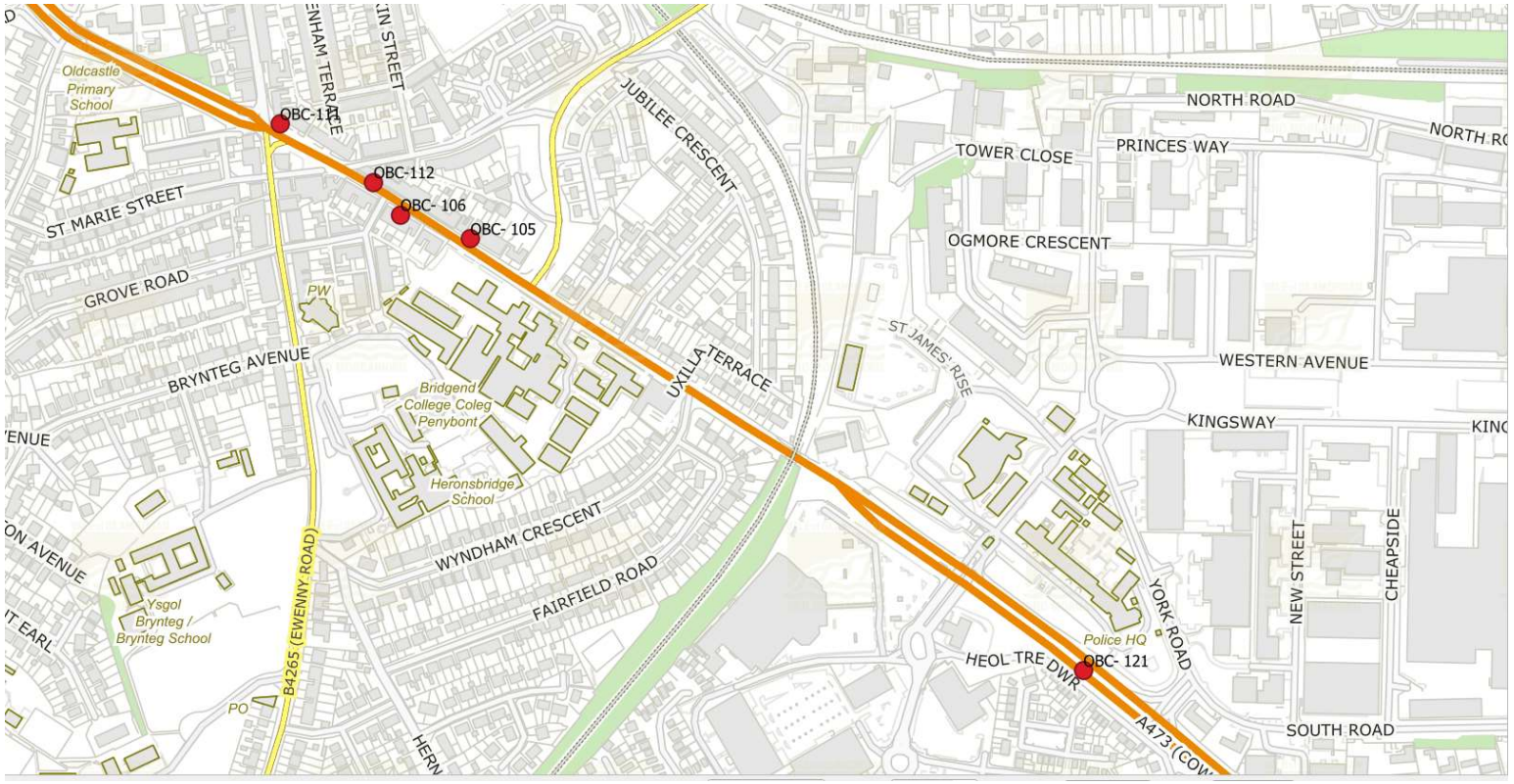


Figure 7 - Non-Automatic Monitoring Sites Near Ewenny Cross Roundabout

Figure 8 - Non-Automatic Monitoring Sites on Coychurch Road and A473

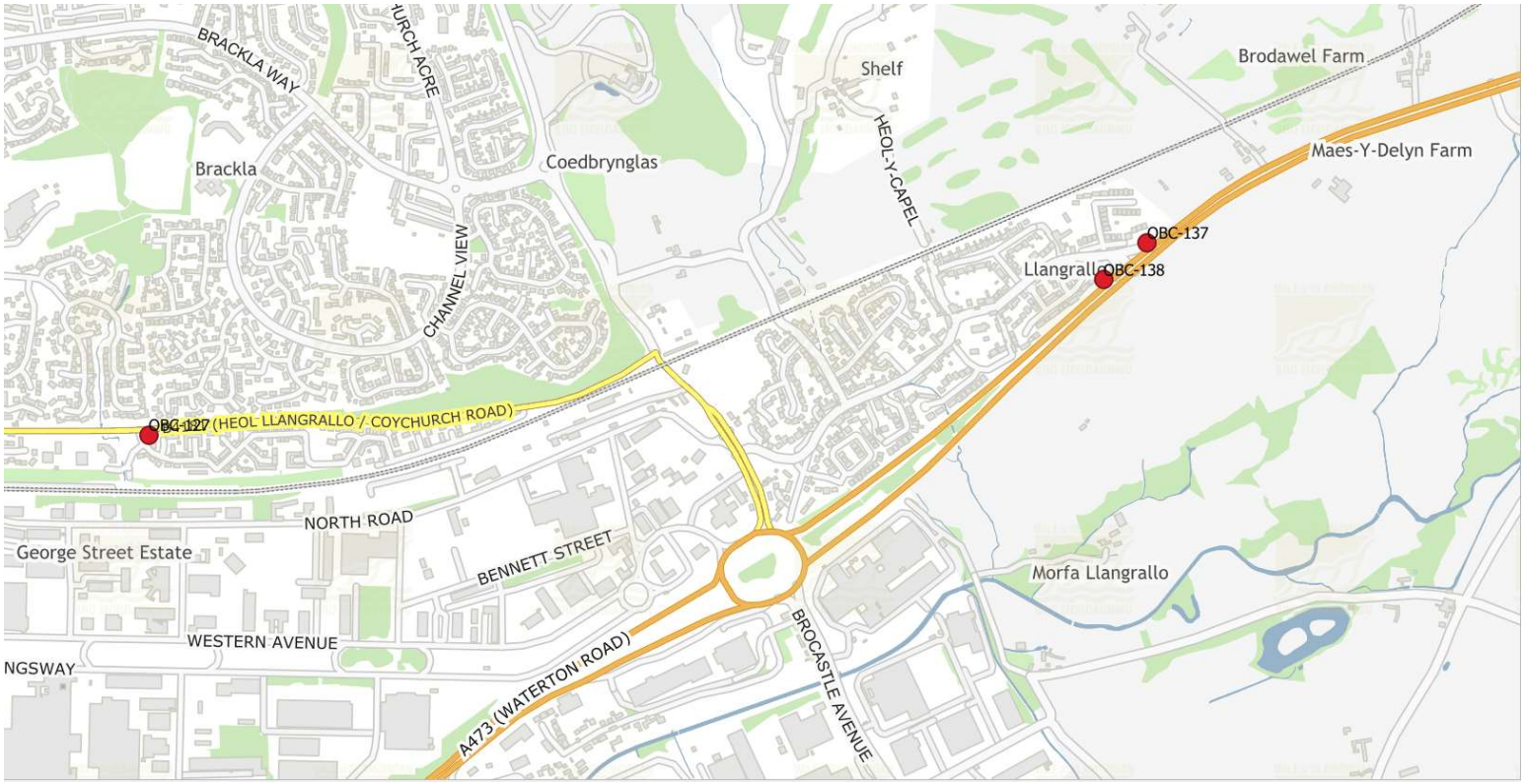


Figure 9 - Non-Automatic Monitoring Sites in Pencoed

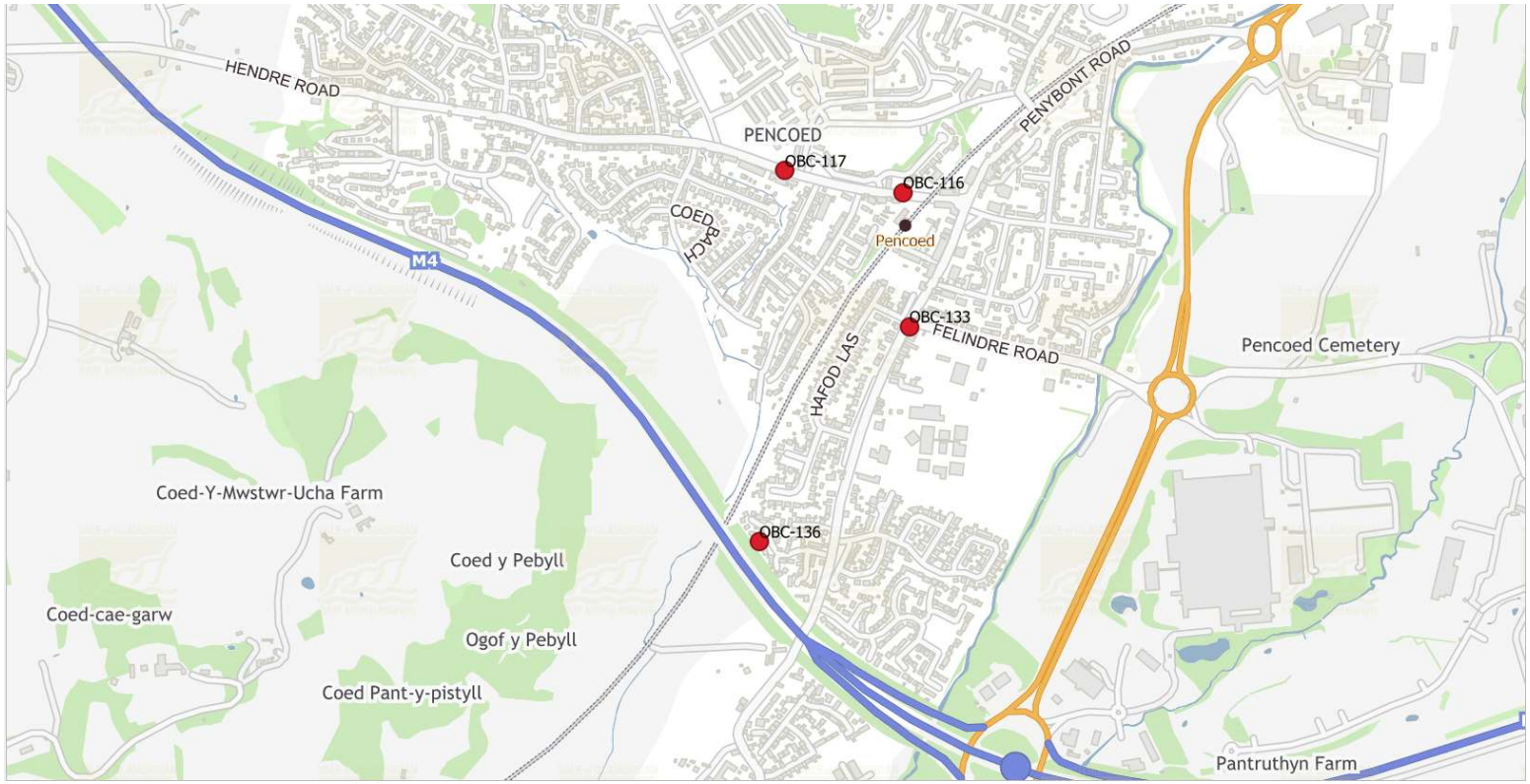


Figure 10 - Non-Automatic Monitoring Site in Wern Fawr, Pencoed

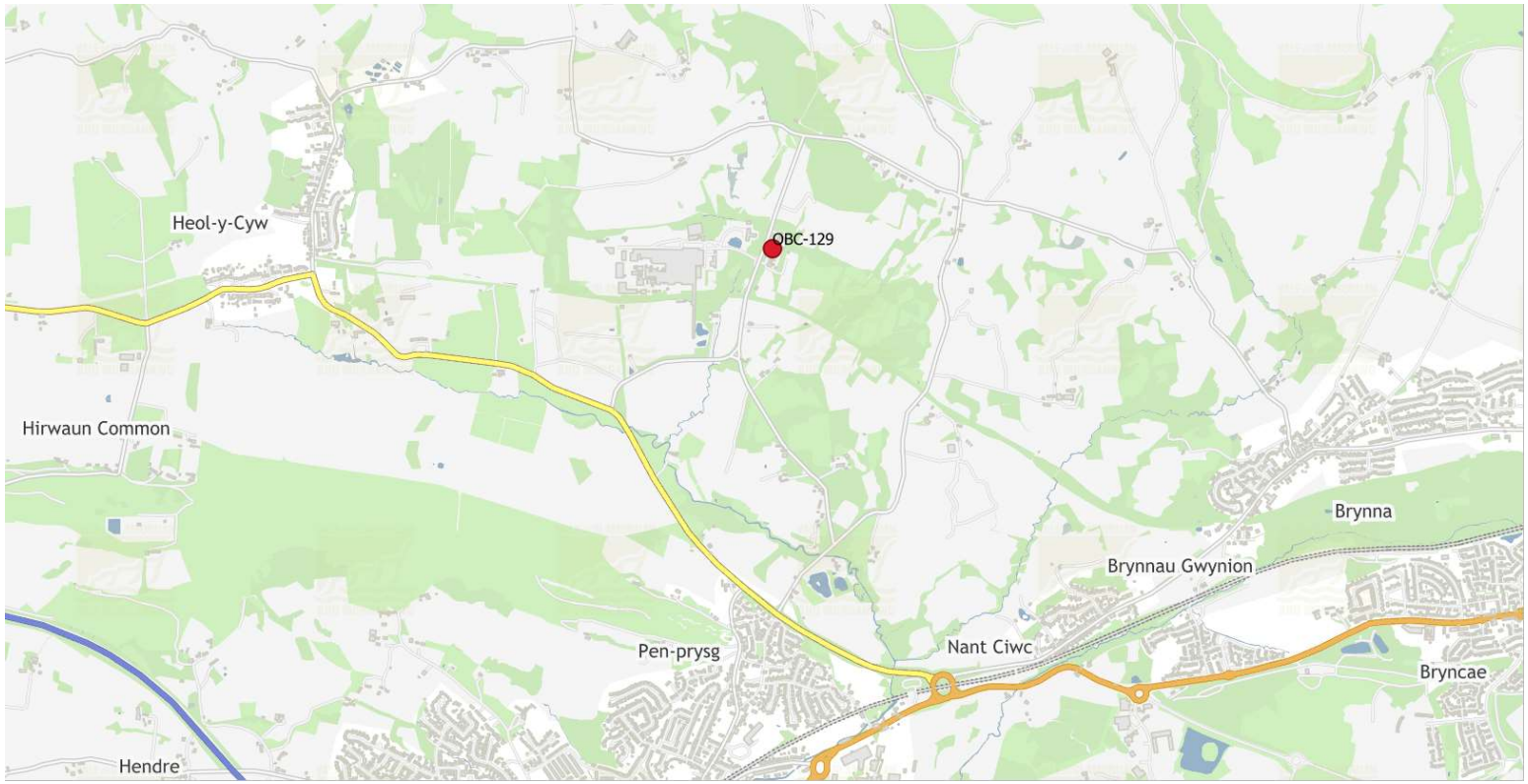


Figure 11 - Non-Automatic Monitoring Sites in Tondu, Bryncethin and Blackmill

Figure 12 - Non-Automatic Monitoring Sites in Maesteg

Figure 13 - Non-Automatic Monitoring Site on Kenfig Hill

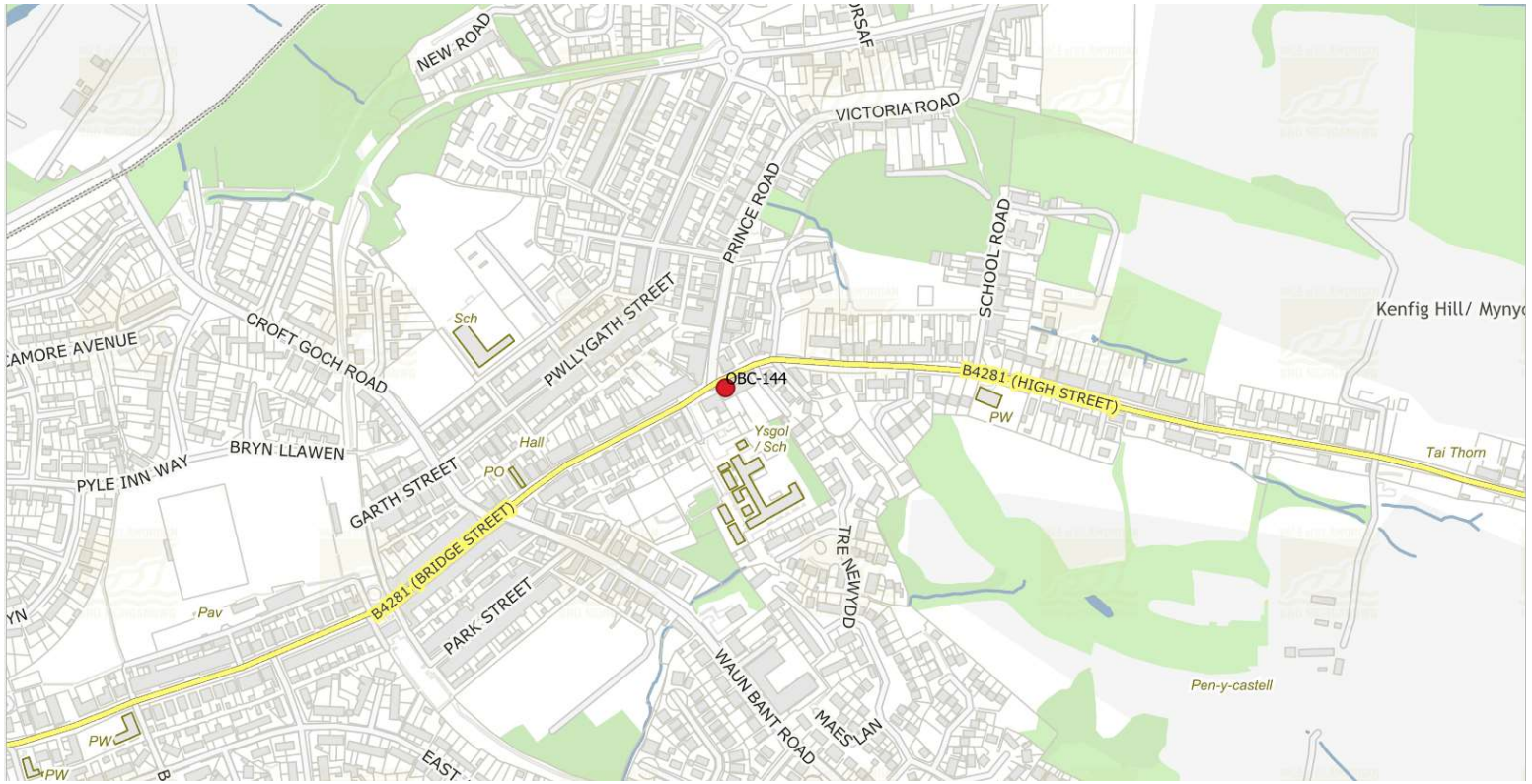
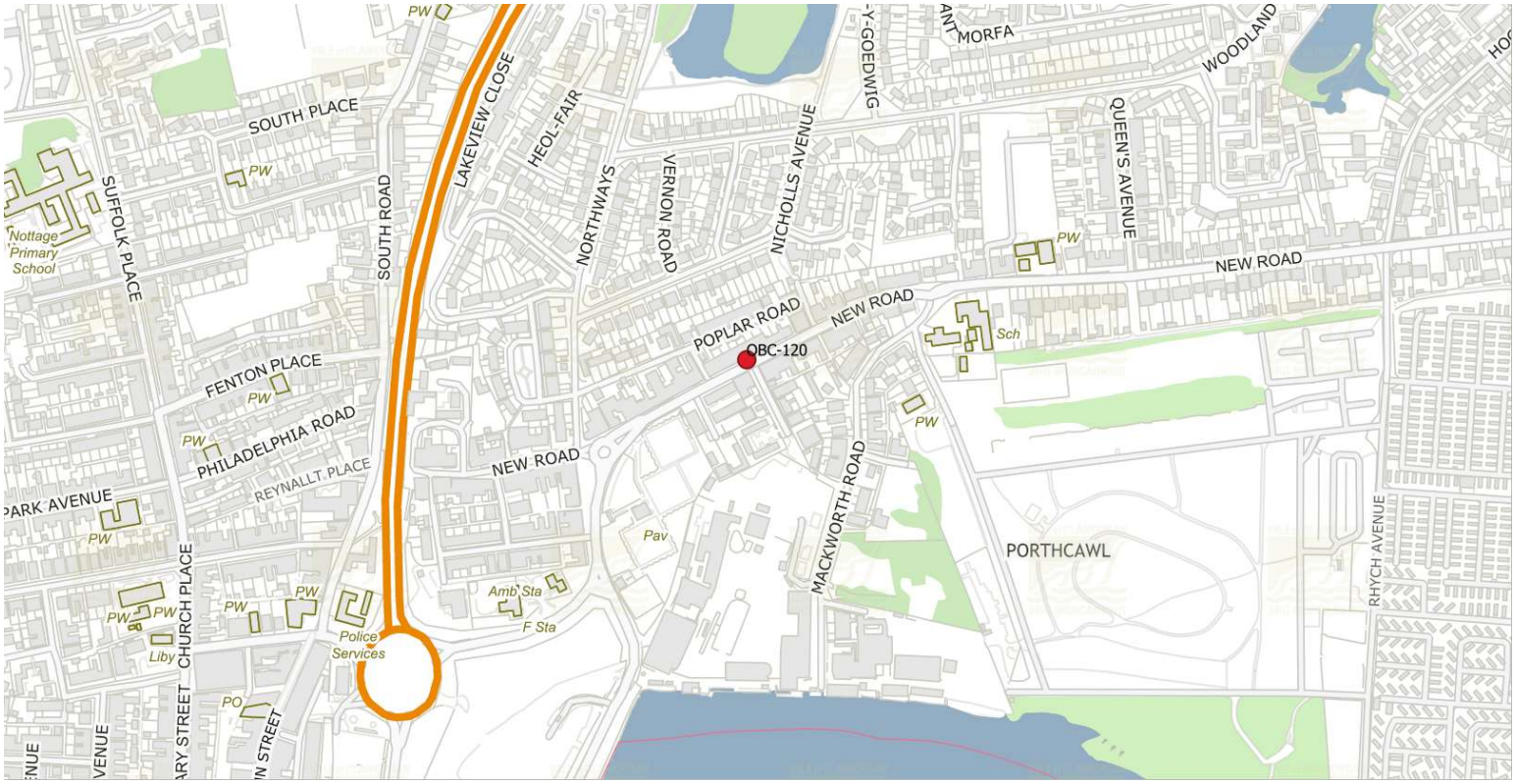


Figure 14 - Non-Automatic Monitoring Site in Porthcawl



2022 Air Quality Monitoring Results

Table 6 - Park Street Automatic Monitor results

Site Name	Site Type	Within AQMA?	Valid Data Capture 2022 %	Annual Mean Concentration (µg/m^3)	
				2021	2022
Park Street AQMA	Roadside	Y	97	27	28

Table 7 - Non-Automatic Monitoring Results

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2022 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
						2018	2019	2020	2021	2022
OBC-107	290347	179959	Roadside	100.0	100.0	31.7	32.0	24.3	27.7	26.1
OBC-108	290311	180032	Roadside	100.0	100.0	38.5	36.2	27.5	31.7	29.4
OBC-102	290354	179807	Roadside	100.0	100.0	23.5	23.9	18.3	20.6	19.9
OBC-103	290250	179782	Roadside	100.0	100.0	36.3	37.1	30.4	31.9	29.1
OBC-104	290286	179800	Roadside	100.0	100.0	37.9	39.8	29.8	33.6	29.0
OBC-109	290239	179795	Roadside	90.4	90.4	20.6	19.9	20.1	19.8	16.4
OBC- 122	289919	179755	Kerbside	73.0	73.0		16.7	15.2	15.8	16.7
OBC- 123	290014	179698	Roadside	100.0	100.0		**55.2**	**42.4**	**46.5**	**45.5**
OBC- 124	289859	179710	Roadside	100.0	100.0		16.6	12.9	14.1	12.7
OBC-110	289988	179701	Roadside	100.0	100.0	**59.5**	**58.9**	**43.6**	**46.3**	**47.2**
OBC-131-1, OBC-131-2, OBC-131-3	290040	179704	Roadside	100.0	100.0				28.3	27.3
OBC-101	290469	179837	Urban Centre	90.4	90.4	17.9	18.6	13.6	15.3	13.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2022 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
						2018	2019	2020	2021	2022
OBC-111	290700	179305	Roadside	100.0	100.0	26.2	25.8	19.7	22.4	20.9
OBC- 105	290899	179185	Roadside	100.0	100.0	22.6	21.2	16.1	19.2	18.1
OBC- 106	290826	179210	Kerbside	100.0	100.0	26.7	24.0	25.8	26.1	22.7
OBC- 121	291540	178734	Roadside	100.0	100.0		18.5	14.9	15.8	14.9
OBC-112	290798	179244	Roadside	100.0	100.0	32.1	36.2	23.7	29.2	26.7
OBC-113	290616	178394	Roadside	100.0	100.0	15.9	14.7	12.2	13.8	13.3
OBC-115	290667	178529	Roadside	100.0	100.0	22.3	20.9	16.3	18.5	17.0
OBC-128	286218	189805	Roadside	90.1	90.1			11.0	16.8	8.8
OBC- 125	285299	191136	Roadside	92.6	92.6		18.8	19.3	9.8	14.5
OBC-135	289402	184461	Roadside	92.6	92.6				17.8	21.5
OBC-144	283720	182918	Roadside	100.0	100.0					11.7
OBC-097	290687	180185	Roadside	100.0	100.0	24.6	24.8	19.5	21.4	20.7
OBC-116	295886	181642	Roadside	93.1	93.1	22.1	20.8	15.8	18.5	17.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2022 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
						2018	2019	2020	2021	2022
OBC-117	295641	181687	Roadside	100.0	100.0	16.7	16.9	12.8	13.7	12.7
OBC-129	296439	184111	Industrial	100.0	100.0			9.1	7.7	7.1
OBC-133	295899	181363	Kerbside	100.0	100.0				17.8	18.8
OBC-136	295588	180916	Roadside	100.0	100.0					15.5
OBC-120	282264	177237	Roadside	81.5	81.5	15.1	16.0	10.9	12.6	11.9
OBC-126	291125	179517	Kerbside	100.0	100.0	19.7	17.2	18.5	18.7	17.6
OBC-127	292236	179473	Roadside	100.0	100.0		15.1	13.7	15.6	16.1
OBC-130	291386	184168	Roadside	100.0	100.0				31.1	29.0
OBC-132	293418	186662	Roadside	100.0	100.0				25.1	21.6
OBC-137	294309	179872	Roadside	67.5	67.5					16.5
OBC-138	294218	179795	Kerbside	67.5	67.5					23.8

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure 15 - Trends in Annual Mean NO_2 Concentrations Within Park Street AQMA

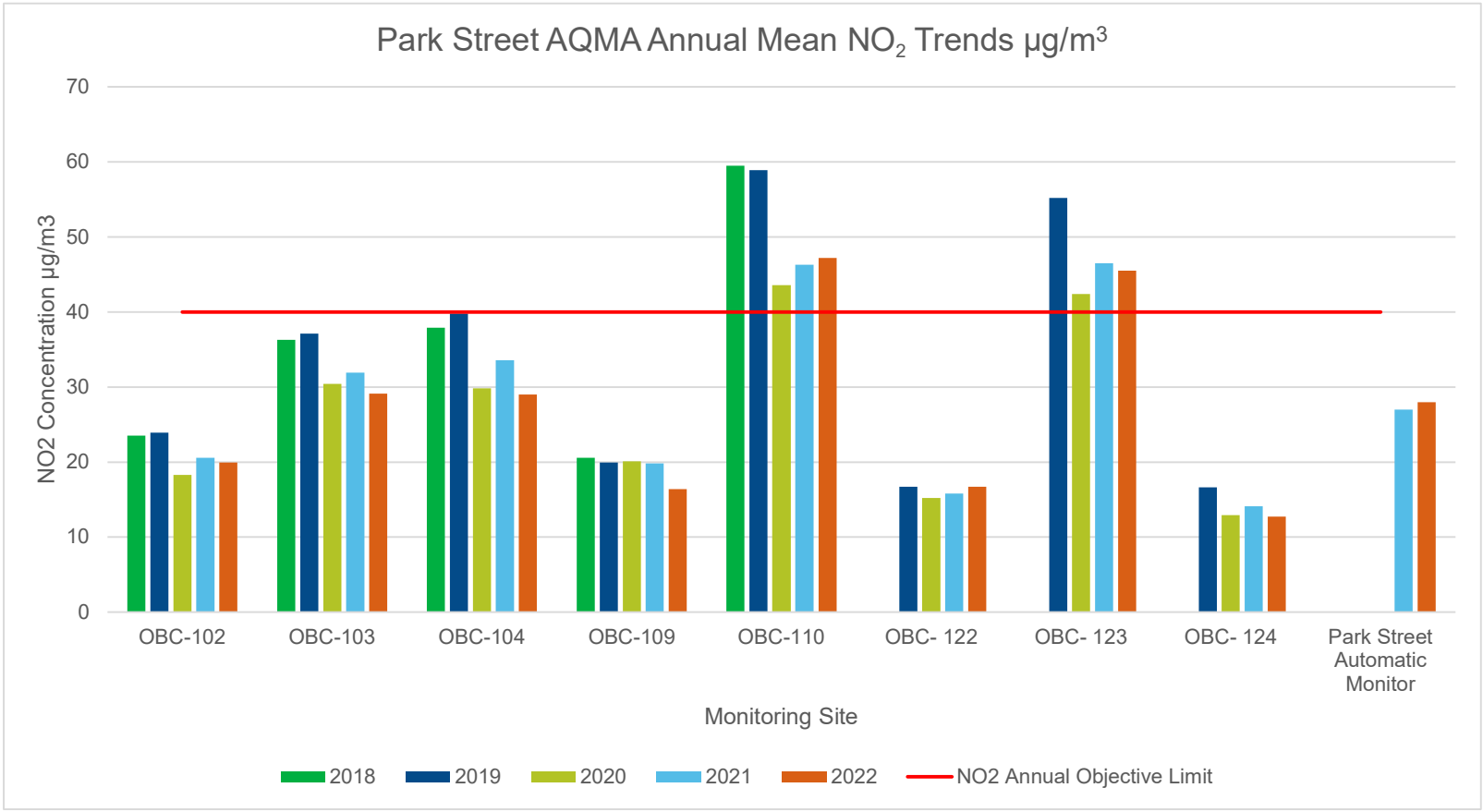


Figure 16 - Trends in Annual Mean NO_2 Concentrations Within Bridgend

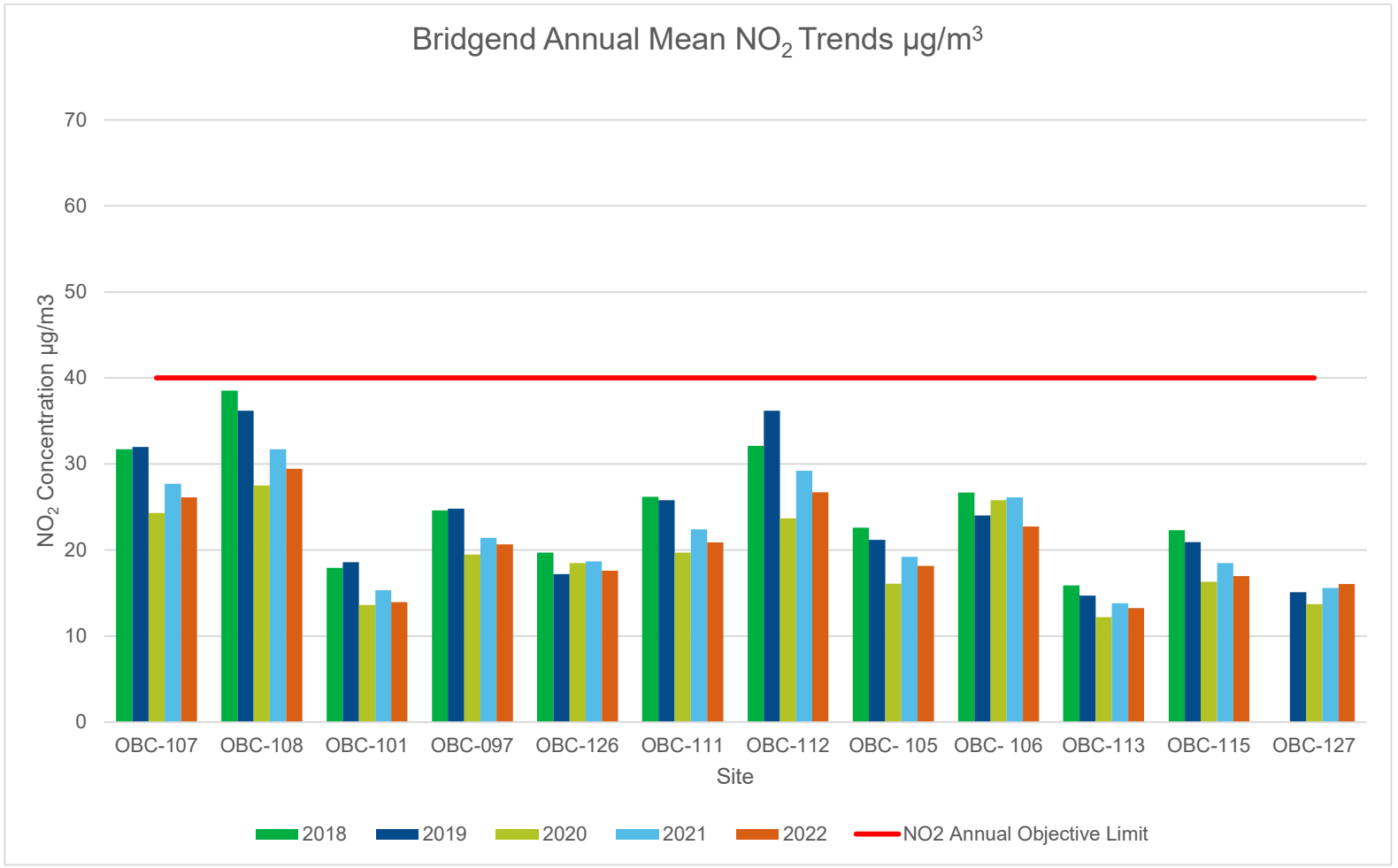


Figure 17 - Trends in Annual Mean NO_2 Concentrations Within Pencoed

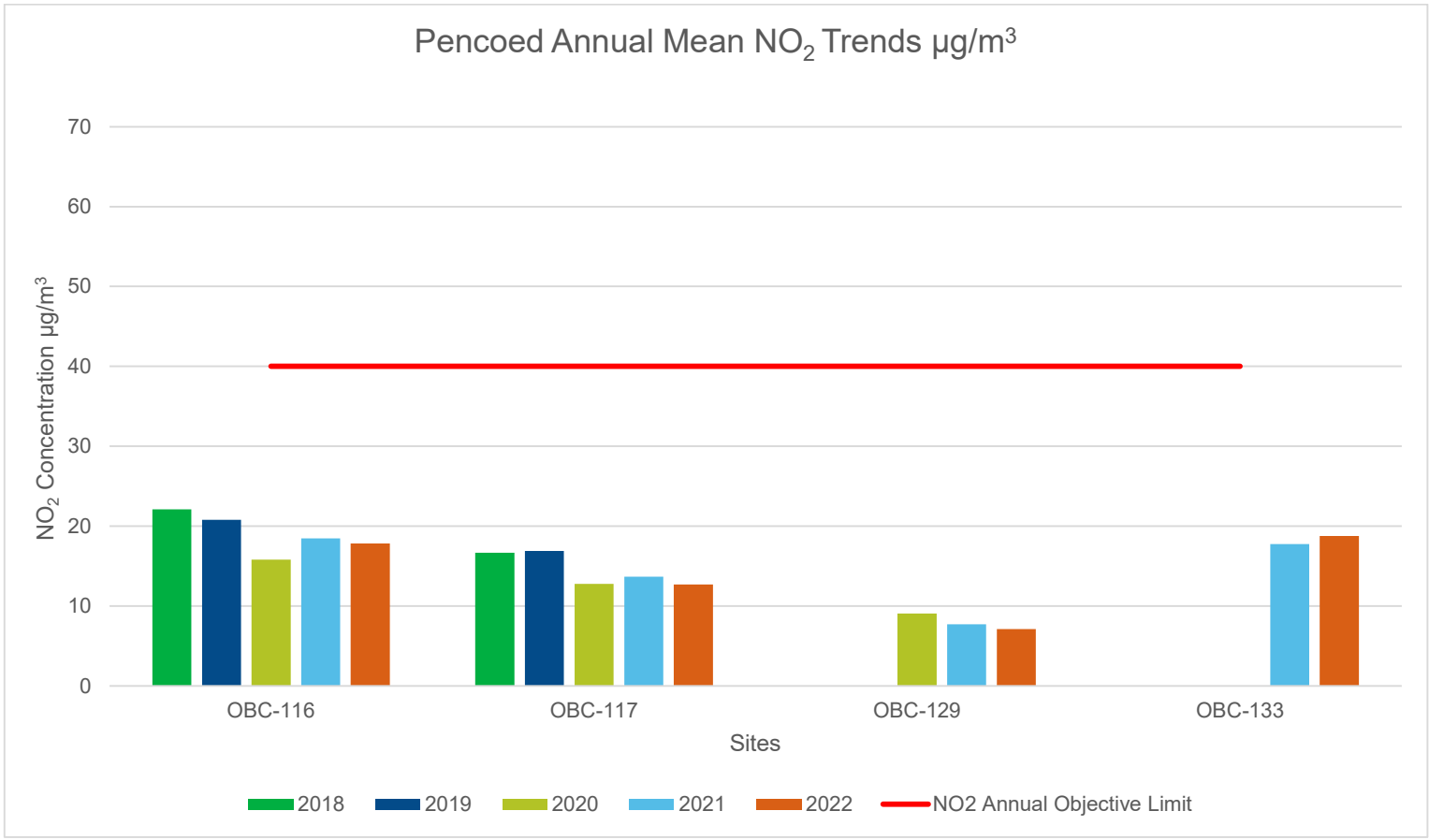


Figure 18 - Trends in Annual Mean NO_2 Concentrations Within Tondu, Brycethin,Blackmill Maesteg and Porthcawl

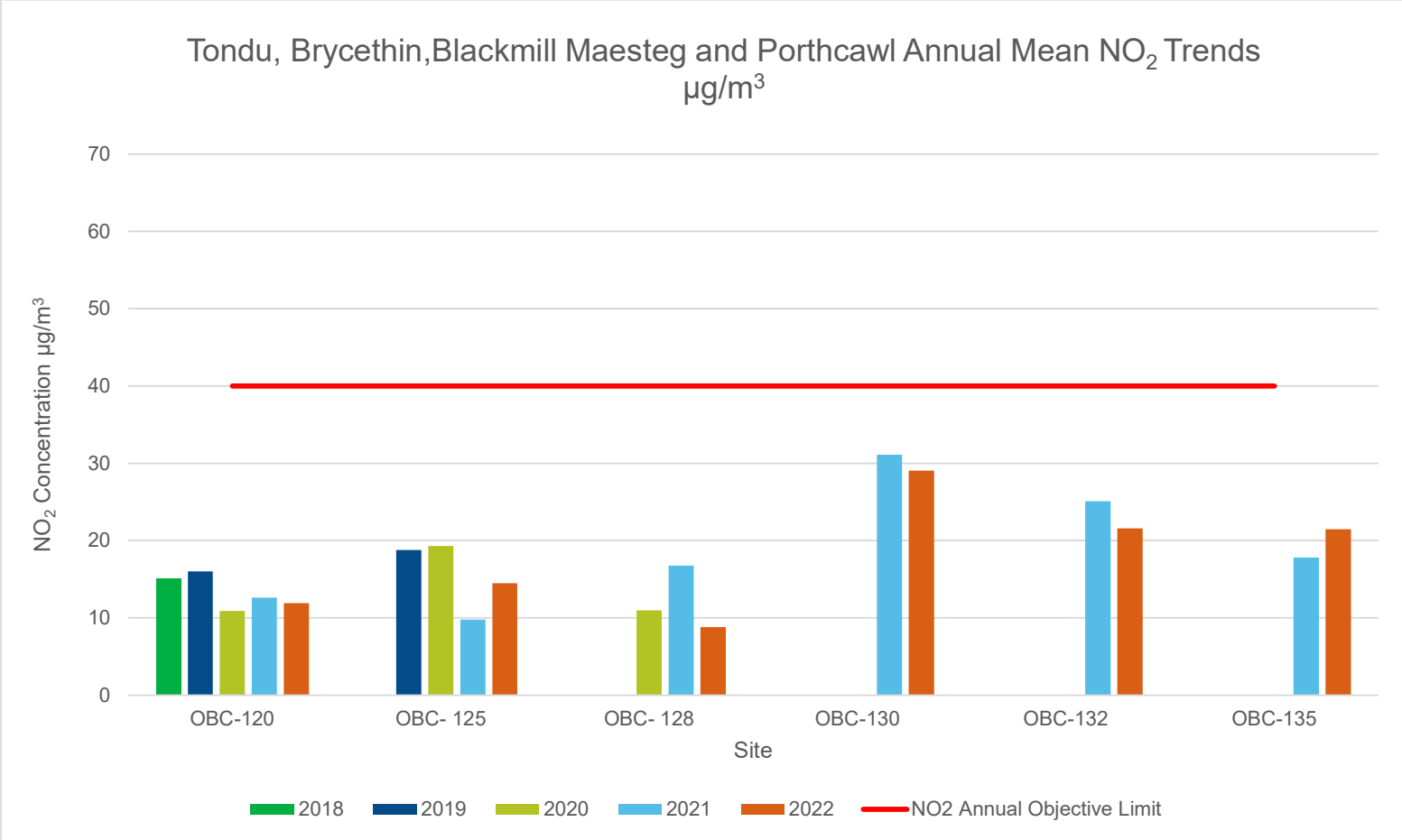


Table 8 - 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2021	2022
Park Street AQMA	Roadside	Automatic	97	97	0	0

Notes:

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table 9 - Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2021	2022
Park Street AQMA	Roadside	95	95	17	18

Notes:

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table 10 - 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2021	2022
Park Street AQMA	Roadside	95	95	0	0

Notes:

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Comparison of 2022 Monitoring Results with Previous Years and the Air Quality Objectives

2.1.3 Nitrogen Dioxide (NO_2)

Nitrogen dioxide was measured during 2022 by a network of 38 passive diffusion tubes. To ratify the 2022 diffusion tube dataset, a bias adjustment factor of 0.73 was applied to the annual average readings. The factor was derived from a local bias adjustment co-location study in which diffusion tubes were co-located at the Park Street AQMA automatic monitor

Annual average datasets outline continued elevated and exceeding levels of NO_2 at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2022 at sites OBC-110 & OBC-123, located on Park Street, demonstrates annual average levels in exceedance of the annual average air quality objective set at (40µg/m3) for NO2. OBC-110 & OBC-123 recorded annual average figures in 2022 of 47.2µg/m^3 & 45.5µg/m^3 respectively. This represents a reduction in NO_2 concentrations of 12% and 17% at these receptors since 2019.

Automatic monitoring carried on Park Street demonstrates compliance with the annual air quality objective for NO_2. This automatic monitor also showed no exceedances of the 1-hour NO_2 objective of 200 µg/m^3 not to be exceeded more than 18 times annually for both periods.

Compliance of air quality objectives at the automatic monitoring station confirms the varied impact of pollutant emissions on Park Street. Two non-automatic monitoring sites located approximately 17 metres from the monitoring station, OBC-110 & OBC-123, exceed the annual air quality objective for NO_2. Air quality issues are exacerbated in the location of non-compliance by the proximity of terrace housing to the road and poor dispersion of pollutants.

Nitrogen dioxide concentrations at all other non-automatic locations were shown to be compliant the annual air quality objective for NO_2 of 40µg/m^3.

2.1.4 Particulate Matter (PM_{10})

Particulate matter (PM_{10}) monitoring was carried out by the automatic monitoring station located in Park Street AQMA. The annual average figure shown at this site in 2022 was 18µg/m^3, which is compliant with the PM_{10} annual average objective of 40 µg/m^3. There

were also no exceedances of the 24-hour PM_{10} objective of 50 µg/m3 not to be exceeded more than 35 times annually.

Summary of Compliance with AQS Objectives as of 2022

Concentrations within Park Street AQMA still exceed the annual objective for NO_2. Therefore, this AQMA should remain.

3 New Local Developments

P/22/845/FUL Sunnyside House

Demolition of Sunnyside House; proposed development of 65no. one & two-bedroom apartments & associated works including sustainable drainage, landscaping, cycle and car parking and other works.

An Air Quality Assessment (AQA) was provided as part of the planning application for P/22/845/FUL Sunnyside House.

The assessment provides details of the operational and construction impacts on local air quality. Traffic flows for the proposed development fall below those required to submit an AQA in the vicinity of an AQMA. However, It was deemed good practice to provide an AQA due to consistent exceedance of the nitrogen dioxide annual objective within two receptors in Park Street AQMA. The AQA would also reassure residents who have raised concerns about proposed developments within an area of already poor air quality.

The assessment concludes that the operational phase of the proposed development will not generate any significant traffic flows, in fact there is anticipated to be a decrease compared to existing use, and no significant impact is predicted on local air quality.

The construction works have the potential to create dust. During construction it will therefore be necessary to apply a package of mitigation measures to minimise dust emissions. Appropriate measures have been recommended and, with these measures in place, it is expected that any residual effects will be ‘not significant’

Considering the information provided and the reduction of traffic predicated compared to the existing use of the building, SRS made no objections related to air quality towards the proposed development.

Details for this planning application can be found at http://planning.bridgend.gov.uk/Planning/Display/P/22/845/FUL#details.

Local Development Plan

Proposed development projects currently listed in the Local Development Plan (LDP) will require up to date air quality impact assessment in support of the planning application. Further information on these developments will be included in subsequent APRs following submission of planning applications. Further details for the LDP can be found at

https://www.bridgend.gov.uk/residents/planning-and-building-control/development-planning/.

Road Traffic Sources (and Other Transport)

No new road traffic sources have been identified which require consideration in this report.

Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

No new Industrial / Fugitive or Uncontrolled Sources / Commercial Sources have been identified which require consideration in this report.

Other Sources

There are no other sources have been identified which require consideration in this report.

4 Policies and Strategies Affecting Air Pollution

Air Quality Planning Policies

The Local Development Plan (LDP) document has been under review since 2018. SRS are feeding into this document where necessary to outline air quality as an influential consideration and ensure its importance within the decision-making process. Refer to the following link for useful questions and answers regarding the new plan's development. https://www.bridgend.gov.uk/news/the-replacement-local-development-plan-explained

Local Transport Plans and Strategies

The Local Transport Plan (LTP) 2015- 2030. The Welsh Government now requires local authorities in Wales to prepare and adopt Local Transport Plan (LTPs) as the framework for identifying local transport schemes for improvements. LTPs therefore replace Regional Transport Plans.

Under guidance from the Welsh Government, local authorities have the choice to develop and adopt either joint LTPs with neighbouring local authorities or a stand-alone LTP for their own geographical area.

Bridgend County Borough Council has opted for the latter approach in view of the uncertainty of the future of local authority boundaries and structures amid discussions of reorganisation of local government.

The LTP looks to tackle growing traffic levels (and hence air quality impacts) by providing strategies which focus upon providing efficient and effective transport networks. "The Council is mindful of the broader negative impact of transport related emissions on health and the natural environment" "To reduce the environmental impact of transport, the LTP includes measures and interventions that will increase opportunities for active travel, encourage the use of public transport and promote modal integration."

The LTP policy recognises the Council's objective to achieving sustainable travel (alternatives to using cars) and reducing negative impacts on the environment. The policy suggests that through improved transport infrastructure and transport services this can be achieved.

The LTP policy is available at http://www1.bridgend.gov.uk/media/352797/bridgend-ltp-wg-approved-version-may-2015.pdf

Active Travel Plans and Strategies

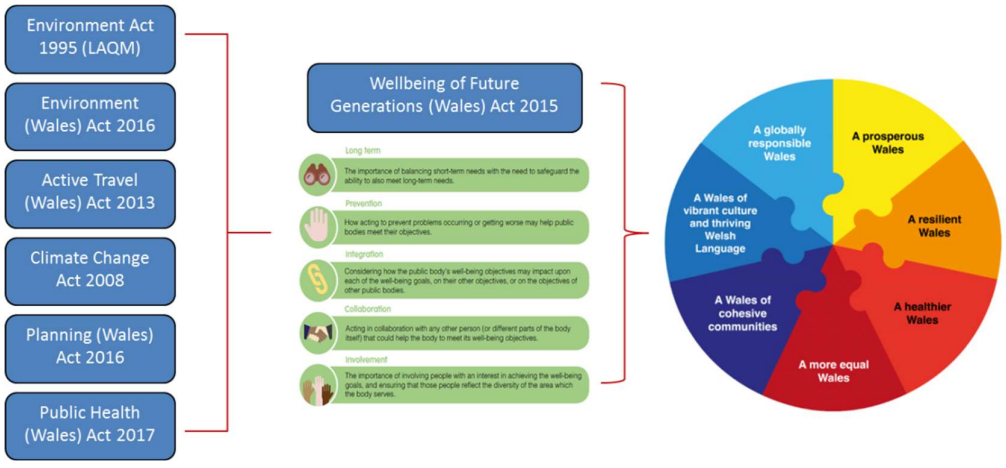
In September 2014, the Welsh Government introduced the Active Travel (Wales) Act. This measure legally requires Welsh local authorities to map and plan suitable routes for Active Travel within certain areas, as designated by the Welsh Government.

Following formal public consultation and review by Welsh Government, BCBC has produced Integrated Network Maps (INM) that show highlighted routes dedicated to pedestrians and cyclists. The maps are available to download from; https://www.bridgend.gov.uk/residents/roads-transport-and-parking/active-travel-routes/

Local Authorities Well-being Objectives

In 2015 Welsh Government made a new law called the Well-being of Future Generations (Wales) Act. The new law has the sustainable development principle at its heart. This means that we need to work in a way that improves wellbeing for people today without doing anything that could make things worse for future generations.

Figure 19 - Well-being of Future Generations (Wales) Act



As highlighted in Figure 19, there are seven national well-being goals that form the basis of the Act and five ways of working which support the goals.

Public bodies have come together in Bridgend to form a Public Services Board (PSB). Bridgend PSB is committed to working together to improve wellbeing in Bridgend County Borough now and in the future. Bridgend PSB has used the sustainable development principle and the new five ways of working to develop a Well-Being Plan (2018-2023).

The plan outlines the things that Bridgend PSB will work together on, over the next five years, well-being objectives and steps, and provide a vision for how Bridgend will look in 10 years' time. The plan is seen as a mechanism that provides the best possible means of working to help understand the underlying causes of problems and prevent those problems getting worse or happening in the future.

Contributing to the seven national well-being goals and long-term vision for Bridgend, Bridgend PSB has developed four main objectives.

Figure 20 - Bridgend Well-Being Objectives

In accordance with air quality, as part of the objective for "Healthy Choices in a Healthy Environment" Bridgend PSB outlines that resources are best utilised and collaborative working ensures that the built, cultural, and natural environment remains resilient in future. The priority areas to endorse and encourage the success of the objective will include working together to maximise benefit from cultural, built and natural assets. It will also look at promoting a more resource and energy efficient way of living and working. In order to measure the success of promoting a more resource and energy way of living, air quality, particularly NO_2 levels will be examined. The Bridgend PSB wellbeing plan is available at https://www.bridgend.gov.uk/media/3657/bridgend-wellbeing-bps-plan-e-0518.pdf

Green Infrastructure Plans and Strategies

Green infrastructure will be provided through the protection and enhancement of existing natural assets and the creation of new multi-functional areas of green space. Green infrastructure corridors will connect locations of natural heritage, green space, biodiversity or other environmental interest. They will be safeguarded through:

1) Not permitting development that compromises their integrity and therefore that of the overall green infrastructure framework;

2) Using developer contributions to facilitate improvements to their quality and robustness;

3) Investing in appropriate management, enhancement and restoration, and the creation of new resources.

A Supplementary Planning Guidance (SPG) concerning Green Infrastructure was produced in 2014 by BCBC to provide a detailed understanding to the elements raised in the LDP. The document highlights how the Council expect habitats to be considered as part of development proposals within the County Borough of Bridgend. It also introduces the concept of adopting a Green Infrastructure Approach to development.

Figure 21 - Green Infrastructure

In addition to the above, outlined within the Bridgend PSB Well-being Plan, as part of the objective “Healthy Choices in a Healthy Environment” and priority area to include working together to maximise benefit from cultural, built and natural assets, the steps involved will;

- Identify opportunities to improve the green asset base by implementing the Bridgend Nature Recovery Plan.
- Improve the public estate and green spaces in urban areas by encouraging award of green flag status.

Climate Change Strategies

Bridgend County Borough Council declared its own climate emergency in June 2020 and set up a Climate Emergency Response programme to commit to the Net Zero 2030 target as an organisation.

Figure 22 - Bridgend Net Zero Stategy

Climate Change Commitment within the LDP

Prior to the development of the 2030 Strategy the LDP, made reference to Climate Change in Policy PLA4 . This stated all development proposals will be required to make a positive contribution towards tackling the causes of and adapting to the impacts of Climate Change and Peak Oil issues. Means of achieving this may include:

- Having lower carbon energy requirements by reducing energy demand, and promoting energy efficiency.
- Utilising local materials and supplies wherever feasible.
- Encouraging the development of renewable energy generation.
- Having a location and layout which reflects sustainable transport and access principles, thereby reducing the overall need to travel.
- Having a design, layout and landscaping which:

(i) helps wildlife and habitats to adapt to the changing climate.

(ii) assists cooling of the urban environment, including the use of passive building techniques where appropriate.

- Using resources more efficiently and minimising wastewater use and pollution.

Avoiding or minimising the risk from flooding and/ or adapting to the increased risk of flooding, coastal erosion and warmer annual mean temperatures; and

- Promoting sustainable building methods and drainage systems where appropriate.

5 Conclusion and Proposed Actions

Conclusions from New Monitoring Data

Annual average datasets outline continued elevated and exceeding levels of NO_2 at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2022 at sites OBC-110 & OBC-123, located on Park Street at residential facades exceed the annual average air quality objective set at (40µg/m3) for NO_2. All automated and non- automated datasets show compliance with the air quality objectives at every other monitored location.

Conclusions relating to New Local Developments

No new local developments have been identified which are expected to have significant impacts on air quality within Bridgend County Borough.

Proposed Actions

The AQAP for Bridgend Park Street will be published in 2023. The AQAP has been updated to include assessment results from bus electrification and HGV restrictions. It also includes a forecasted year of compliance modelling assessment for ‘do minimum and ‘do something’ measures to date. Actions within the current AQAP will be presented to cabinet for approval.

A public health campaign has also been designed in support of the AQAP and improving air quality for Park Street AQMA and Bridgend Town Centre. This includes an expansion of the current automatic monitoring network and the presentation of this data on a website. This resource can also be used by schools and students, for example to help design leaflets for parents and family, linking into the Councils aims around STEM education and improving public knowledge whilst getting residents involved in the project. The key aim of this project is to raise awareness, improve public knowledge and change attitudes around air quality issues and improvements.

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4. Clean Air Advisory Panel report - Impact of the Covid-19 pandemic on air quality in Wales https://airquality.gov.wales/sites/default/files/documents/2021-01/Clean_Air_Advisory_Panel_report-Impacts_of_the_Covid-19_pandemic_on_air_quality_in_Wales_English.pdf
5. Provisional Analysis of Welsh Air Quality Monitoring Data – Impacts of Covid-19 https://airquality.gov.wales/sites/default/files/documents/2020-08/Analysis_of_Welsh_Air_Quality_Data_Impacts_of_Covid-19_Final_Issue2.pdf
6. Provisional Analysis of Welsh Air Quality Monitoring Data – Impacts of Covid-19, Public Health Wales Opinion https://airquality.gov.wales/sites/default/files/documents/2020-08/Covid_and_air_quality-a_public_health_opinion_final_English.pdf

BRIDGEND COUNTY BOROUGH COUNCIL LAQM REPORTS

https://www.srs.wales/en/Environmental-Health/Noise-and-Air-Pollution/Air-quality-and-pollution/Air-Quality-and-Pollution.aspx

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-Updating and Screening Assessment of Air Quality in Bridgend County Borough, July 2003

-Local Air Quality Management Progress Report, July 2005

-Detailed Assessment of Nitrogen Dioxide and Particles (PM_{10}), March 2006

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-Local Air Quality Management Progress Report, August 2018

-Local Air Quality Management Progress Report, August 2019

Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Table A.1 – Full Monthly Diffusion Tube Results for 2022 (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.73) and Annualised	Distance Corrected to Nearest Exposure	
OBC-107	290347	179959	50.9	38.2	38.7	34.3	28.1	28.9	33.7	32.0	32.3	34.5	32.2	45.2	35.8	26.1	-	
OBC-108	290311	180032	56.1	47.6	40.6	36.3	35.0	35.7	39.0	35.0	39.5	39.5	39.8	40.0	40.3	29.4	-	
OBC-102	290354	179807	39.6	24.7	36.3	26.4	20.8	17.6	22.1	26.1	25.3	22.9	28.0	37.5	27.3	19.9	-	
OBC-103	290250	179782	47.4	44.1	43.7	36.8	36.4	36.2	38.0	37.0	34.4	42.1	39.6	42.4	39.8	29.1	-	
OBC-104	290286	179800	38.4	37.1	48.0	42.7	37.3	34.5	40.5	43.7	39.2	44.0	22.6	48.4	39.7	29.0	-	
OBC-109	290239	179795	34.6	21.7	28.9	21.4	14.7	14.8	20.0	20.7	22.1		20.1	27.8	22.4	16.4	-	
OBC- 122	289919	179755	36.5	19.1	32.3		13.5	16.0		16.9	18.7		22.1	30.7	22.9	16.7	-	
OBC- 123	290014	179698	81.5	62.2	71.5	61.3	52.6	53.7	62.3	62.7	60.2	56.7	60.9	63.0	62.4	**45.5**	-	
OBC- 124	289859	179710	33.1	15.7	25.6	16.5	11.2	9.0	12.3	14.8	14.2	13.2	15.9	27.9	17.5	12.7	-	

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.73) and Annualised	Distance Corrected to Nearest Exposure	
OBC-110	289988	179701	87.6	56.6	80.8	62.7	49.1	45.1	59.6	64.2	64.4	69.0	56.5	80.5	64.7	**47.2**	-	
OBC-131-1	290040	179704	54.1	41.9	43.0	36.0	31.4	32.8	36.3	35.0	38.1	35.2	37.8	45.5	-	-	-	Triplicate Site with OBC-131-1, OBC-131-2 and OBC-131-3 - Annual data provided for OBC-131-3 only
OBC-131-2	290040	179704	53.6	41.3	42.8	36.2	28.7	30.3	34.2	31.9	35.2	30.9	39.4	42.6	-	-	-	Triplicate Site with OBC-131-1, OBC-131-2 and OBC-131-3 - Annual data provided for OBC-131-3 only
OBC-131-3	290040	179704	54.6	41.7	40.3	33.2	27.4	28.6	32.0	29.6	36.7	30.4	40.5	35.3	37.3	27.3	-	Triplicate Site with OBC-131-1, OBC-131-2 and OBC-131-3 - Annual data provided for OBC-131-3 only
OBC-101	290469	179837	34.1	19.0	27.4	18.6	13.4	12.2	15.7	15.7	16.2		7.1	30.8	19.1	13.9	-	
OBC-111	290700	179305	49.3	25.5	37.9	29.8	18.3	19.0	22.5	24.8	26.3	24.3	29.8	35.5	28.6	20.9	-	
OBC- 105	290899	179185	40.7	23.5	32.8	23.3	15.4	15.7	20.9	22.1	24.4	19.6	28.2	31.7	24.9	18.1	-	

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.73) and Annualised	Distance Corrected to Nearest Exposure	
OBC- 106	290826	179210	47.8	29.8	39.3	27.9	22.8	22.8	27.7	25.1	30.5	29.9	29.3	40.9	31.2	22.7	-	
OBC- 121	291540	178734	33.6	17.4	32.7	17.8	12.6	13.4	16.6	17.0	17.9	17.4	19.4	29.0	20.4	14.9	-	
OBC-112	290798	179244	60.8	30.7	52.1	38.2	25.7	22.9	32.3	36.3	41.7	27.7	24.1	46.6	36.6	26.7	-	
OBC-113	290616	178394	29.4	17.2	19.5	16.3	13.5	13.4	16.3	16.9	17.4	13.5	19.5	25.0	18.2	13.3	-	
OBC-115	290667	178529	37.0	22.2	28.8	22.7	17.5	15.1	20.3	21.6	22.8	17.6	21.3	32.1	23.3	17.0	-	
OBC-128	286218	189805	19.8	15.1	14.5	11.9	9.7	8.3	9.3	8.8	9.0	10.6	15.8		12.1	8.8	-	
OBC- 125	285299	191136		22.9	24.3	20.0	16.5	15.5	18.9	18.4	22.4	17.3	16.4	26.1	19.9	14.5	-	
OBC-135	289402	184461		28.8	34.6	25.9	26.4	26.4	27.8	26.4	28.8	31.0	31.7	35.9	29.4	21.5	-	
OBC-144	283720	182918	23.8	16.9	20.6	14.5	12.8	12.4	12.3	11.7	13.0	13.4	19.5	20.8	16.0	11.7	-	
OBC-097	290687	180185	41.7	23.8	36.2	26.8	20.0	21.2	27.0	27.7	29.4	26.1	24.4	35.5	28.3	20.7	-	
OBC-116	295886	181642	38.0	20.7	31.2	25.1	16.5	18.2		26.1	21.9	16.7	22.6	32.2	24.5	17.9	-	
OBC-117	295641	181687	32.1	18.0	22.6	18.2	11.3	13.0	14.7	13.4	15.6	16.5	6.6	26.7	17.4	12.7	-	

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.73) and Annualised	Distance Corrected to Nearest Exposure	
OBC-129	296439	184111	18.1	13.6	10.4	9.6	9.6	9.6	8.7	6.7	4.9	7.1	7.1	11.6	9.8	7.1	-	
OBC-133	295899	181363	38.4	21.4	35.6	25.3	18.4	18.3	23.3	22.2	22.6	21.0	28.5	33.8	25.7	18.8	-	
OBC-136	295588	180916	30.1	22.9	21.5	19.7	20.1	18.6	21.8	18.6	19.9	20.6	16.2	24.1	21.2	15.5	-	
OBC-120	282264	177237	27.0	14.5	19.1	17.5	12.0	9.9	14.3		15.3		12.7	21.0	16.3	11.9	-	
OBC-126	291125	179517	40.7	24.9	32.5	24.3	18.1	17.3	22.4	21.6	24.9	16.2	14.2	32.1	24.1	17.6	-	
OBC-127	292236	179473	39.5	20.5	28.7	20.6	15.2	15.5	18.0	19.2	20.9	18.2	21.5	26.2	22.0	16.1	-	
OBC-130	291386	184168	55.7	42.8	35.8	34.2	34.2	38.0	36.5	36.5	34.5	41.6	42.0	45.5	39.8	29.0	-	
OBC-132	293418	186662	37.1	29.1	34.7	30.4	26.4	26.4	30.9	30.0	28.6	28.8	19.4	33.3	29.6	21.6	-	
OBC-137	294309	179872				23.6	17.8	18.0	21.1	22.8	19.9	24.3	11.9		19.9	16.5	-	
OBC-138	294218	179795				32.2	21.3	25.6	31.8	32.1	27.2	29.5	30.4		28.8	23.8	-	

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to the nearest relevant public exposure

Appendix B: A Summary of Local Air Quality Management

Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995, as amended by the Environment Act 2021, and associated government guidance. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas and to determine whether or not the air quality objectives are being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans must then be reviewed and updated no later than every five years; or if a local authority considers there is a need for further or different measures to be taken in order to achieve air quality standards; or if significant changes to sources occur within your local area.

For Local Authorities in Wales, an Annual Progress Report replaces all other formal reporting requirements and have a very clear purpose of updating the general public on air quality, including what ongoing actions are being taken locally to improve it if necessary.

Air Quality Objectives

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table B.1.

The table shows the objectives in units of micrograms per cubic metre μg/m^3 (milligrams per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table B.1 – Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as	Date to be achieved by
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	40µg/m^3	Annual mean	31.12.2010
Sulphur dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	16.25µg/m^3	Running annual mean	31.12.2003
Benzene	5µg/m^3	Annual mean	31 12 2010
1,3 Butadiene	2.25µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m^3	Maximum Daily Running 8-Hour mean	31.12.2003
Lead	0.25µg/m^3	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by Socotec UK Ltd Didcot, using the 50% triethanolamine (TEA) in water method. Socotec UK Ltd Didcot participates in the Annual Field Inter-Comparison Exercise and Workplace Analysis Scheme for Proficiency (WASP) inter-comparison scheme for nitrogen dioxide diffusion tube analysis. From April 2014 the WASP Scheme was combined with the STACKS scheme to form the new AIR scheme, which Socotec UK Ltd Didcot participates in. The AIR scheme is an independent analytical proficiency testing scheme operated by LGC Standards and supported by the Health and Safety Laboratory (HSL).

The laboratory Socotec UK Ltd Didcot is regarded ranked as the highest rank of satisfactory in relation to the WASP intercomparison scheme for spiked nitrogen dioxide diffusion tubes. Information regarding tube precision can be obtained via http://laqm.defra.gov.uk/diffusion-tubes/precision.html Information regarding WASP results can be obtained via http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html

Diffusion Tube Annualisation

Two diffusion tube site required annualisation in 2022. Details for these sites are provided in Table C.2. Annualisation is required for any site with data capture less than 75% but greater than 25%.

Diffusion Tube Bias Adjustment Factors

SRS on behalf of BCBC have applied a local bias adjustment factor of 0.73 to the 2022 monitoring data. A summary of bias adjustment factors used over the past five years is presented in Table C.1.

Obtaining a local bias adjustment factor was performed by carrying out a co-location study at Park Street continuous automatic monitor. Triplicate diffusion tubes were sited next to the NOX inlet of the monitoring station. The diffusion tube results are then compared to those measured by the continuous monitor. Once all ratified annual data is obtained, a data check is carried out to check the precision of data. Precision is calculated based on the diffusion tube data only. Tube precision is categorised as good or poor. Good precision applies where the coefficient of variation (CV) of triplicate diffusion tubes for eight or more

periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%. Poor precision applies where the CV of four or more periods is greater than 20% and/or the average CV is greater than 10%. Details for this co-location study are presented in Table C.2.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	Local	-	0.73
2021	National	03/22	0.78
2020	National	06/21	0.76
2019	National	09/20	0.75
2018	National	06/19	0.77

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within Bridgend County Borough required distance correction during 2022.

QA/QC of Automatic Monitoring

The type of PM_{10} monitor utilised within Bridgend do not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within Bridgend recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within Bridgend required distance correction during 2022

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Diffusion Tube ID	Annualisation Factor Cardiff Centre	Annualisation Factor St Julians Newport	Annualisation Factor Bristol St Pauls	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)
OBC-137	1.0464		1.2247		1.1355	19.9	22.6
OBC-138	1.0464		1.2247		1.1355	28.8	32.7

Table C.3 – Local Bias Adjustment Calculations

	STEP 3a Local Bias Adjustment Input 1
Periods used to calculate bias	11
Bias Adjustment Factor A	0.73 (0.7 - 0.76)
Diffusion Tube Bias B	37% (31% - 43%)
Diffusion Tube Mean (µg/m^3)	37.0
Mean CV (Precision)	4.9%
Automatic Mean (µg/m^3)	27.0
Data Capture	100%
Adjusted Tube Mean (µg/m^3)	27 (26 - 28)

Overall Diffusion Tube Precision	Good Overall Precision
Overall Continuous Monitor Data Capture	Good Overall Data Capture

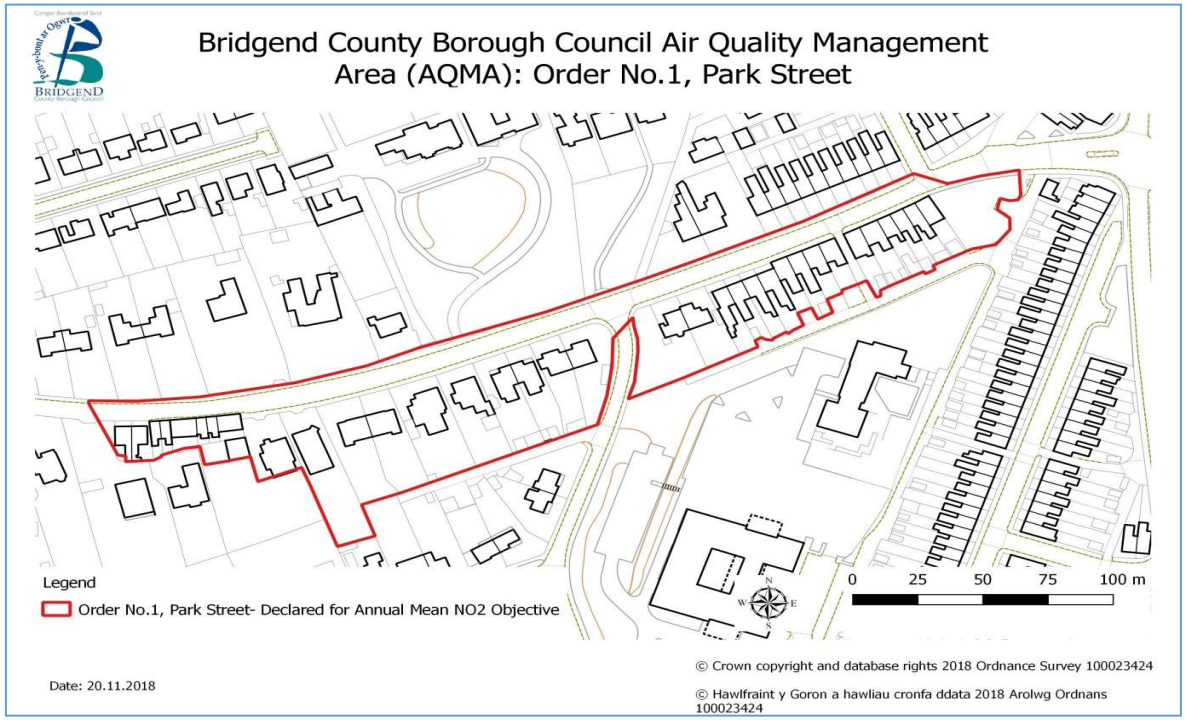
Local Bias Adjustment Factor	0.73

Notes:

A single local bias adjustment factor has been used to bias adjust the 2022 diffusion tube results.

Appendix D: AQMA Boundary Maps

Figure D.1 –



Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide